The validity of an atrial pressure measurement can be assumed only when the contour is observed to be that of a recognizable atrial pressure pulse. Measurements or calculations derived from bizarre atrial pressure pulses are worthless and misleading.

The most common source of error in recording atrial pressure pulses is the practice of recording an integrated pressure. The integrating circuit, no matter how skillfully engineered, cannot distinguish between an abnormal and a normal pressure pulse contour. A critical knowledge of what a good atrial pressure pulse contour looks like in contrast to a poor one is essential and should be applied before the investigator flips the integrating switch (if ever).

Then we have the example of elaborate interpretation of phasic atrial or right ventricular pressure pulses recorded by an extremely low frequency manometer or transducer system. There is undershooting or overshooting, gross distortion of phase relations, and the introduction of sinusoidal fluid waves, which further distort the already distorted pressure pulse. A knowledge of what the pressure pulse looks like when recorded under the best possible conditions (and there are numerous examples) would reveal the futility of building elaborate theses or concepts based on such inadequate pressure pulses. One can only point out that the error is one of critical judgment.

Instrumentation has now reached a stage of development where we can expect reasonably accurate records when the equipment is properly and intelligently used. It seems to the author that the time has come when the major emphasis should be on eliciting the greatest amount of information from the cardiovascular tracings. This requires a great deal more experience and critical know-how than we can muster at present. Expansion of centers prepared to impart this type of rigorous training is needed. However, the desire to obtain such training must be forthcoming also. One cannot hope to exert critical judgment in this area without experience and training. It is to be hoped that more cardiovascularly inclined investigators will seek such training.

DAVID F. OPDYKE

The Study of Nature will ever yield us fresh Matter of Entertainment, and we have great reason to bless God, for the Faculties and Abilities he has given us, and the strong Desire he has implanted in our Minds, to search into and contemplate his Works, in which the farther we go, the more we see the Signatures of his Wisdom and Power, every Thing pleases and instructs us, because in every Thing we see a wise Design.

As the beautiful Fabrick of this World was chiefly framed for and adapted to the Use of Man, so the greater insight we get into the Nature and Properties of Things, so much the more Beneficial will they be to us, the more will our real Riches thereby increase, the more also will Man's original Grant of Dominion over the Creatures be enlarged.—Statistical Essays. Reverend Stephen Hales, B.D., F.R.S. From the Dedication to the King's Most Excellent Majesty. Volume II, London, 1733.
able forms of this disease, and to do this before the strain of high blood pressure can damage the heart and blood vessels.

Our new plans include a massive assault on the problems of atherosclerosis, or hardening of the arteries. Already, we are gathering information about its predisposing and aggravating factors through what we call epidemiologic studies of this truly devastating epidemic disease. Already our research scientists have uncovered and are pursuing many highly promising clues, which, singly or in combination, may soon produce the knowledge needed to control atherosclerosis. I predict that within the next decade, great advances will be made toward this goal, perhaps, through new and effective methods of treatment and prevention.

Organizationally, we must be ready to apply new knowledge on hypertension and atherosclerosis when it becomes available. This will require greatly expanded programs of professional and public education, and will likewise involve a substantial strengthening of our community service programs. In the 9 years of our existence we have made great strides in perfecting the organizational structure which will be needed to cope with this task.

If there is truly such hope of success, what should be our aims as to the ultimate size, the financial needs, and the over-all program of the American Heart Association? This is a most difficult question. At the moment our task is so great and the demands on our resources so overwhelming that to project a limit on our growth seems hardly realistic. I submit that we must continue to grow and expand to the extent our program requires. But, and here is the great advantage of an organization such as ours, we will stop our growth if and when our mission has been fulfilled. Actually we hope that that time may come soon. But soon or late we shall persist until we gain the victory, firm in the conviction that a complete conquest over cardiovascular disease is what the people want, and what the people deserve to have.


Three patients with recent myocardial infarction complicated by intensively hemorrhagic pericarditis, pleurisy, and pneumonia, respectively, are reported. In the instance of hemorrhagic pericarditis anticoagulant therapy was not employed and in the other 2 patients was used for only a few days with the prothrombin time never exceeding therapeutic levels. These 3 patients present features that have been described recently as characteristic of a postmyocardial-infarction syndrome and point out that the inflammatory reaction constituting this syndrome may be hemorrhagic in character. The authors suggest that the postmyocardial-infarction syndrome is allergic in nature, representing a hypersensitivity reaction to autoantigens resulting from necrosis of the myocardium.
DETECTION AND ESTIMATION OF AORTIC FLOW


The clinical and angiocardiographic findings in 4 patients with pulmonary arteriovenous fistula are presented. Apparently 40 per cent of the cases reported in the literature also have hemangiomas elsewhere in the body, suggesting familial telangiectasis (Rendu-Osler-Weber disease). The classical syndrome of cyanosis, digital clubbing, polycythemia and a vascular murmur was present in only 2 of 13 patients; only 8 of the 13 were symptomatic, and 3 of these had acute cerebral conditions: brain abscess, meningoencephalitis, and hemiplegia. Conventional roentgenography was adequate to raise the index of suspicion, but angiocardiography was necessary not only to establish the diagnosis, but also to delineate the location and extent of the afferent and efferent connections, so necessary to the thoracic surgeon for excision (segmental resection or lobectomy).

Schwedel


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Medical Eponyms

By Robert W. Buck, M.D.

Heberden's Nodes. The following is not a partial quotation, but represents the entire commentary made by William Heberden (1710-1801) on the nodes which perpetuate his name. His Commentaries on the History and Cure of Disease (Commentarii de Morborum Historia et Curatione) is dated 1782. The quotation is from the fourth edition (London, 1816).

“What are those little hard knobs, about the size of a small pea, which are frequently seen upon the fingers, particularly a little below the top, near the joint? They have no connection with the gout, being found in persons who never had it; they continue for life; and being hardly ever attended with pain, or disposed to become sores, are rather unsightly, than inconvenient, though they must be some little hindrance to the free use of the fingers.”
GLENN E. ELDER, ARTHUR A. BROFMAN, HERMAN K. KOHN, AND RAYMOND A. CHARMS


So in whatsoever creature there is lungs, there is likewise in them two ventricles of the heart, the right and the left, and wheresoever the right ear is in any, there is the left, not on the contrary, that where the left is, there is the right one too; that I call the left ventricle which is distinguished in place, but not in use from the tother, which doth diffuse the blood into the whole body, not into the lungs alone, hence the left ventricle seems to make up the heart of it self, being placed in the middle, and so fenc'd with higher ditches, and fram'd with greater diligence that the heart seems to have been made for the left ventricle's sake, and the right ventricle seems as it were a servant to the left, and does not reach to the top of it, and is made up of a thinner threefold wall, and it has, as Aristotle says, a kind of articulation above the left, and is more capacious, as administering not only matter to the left, but giving nourishment likewise to the lungs.—WILLIAM HARVEY. De Motu Cordis, 1628.


Study of the clinical course of 87 young patients with severe free aortic regurgitation due to rheumatic heart disease showed that at the end of 10 years 37 per cent were still able to lead quiet, nearly normal lives, and at the end of 20 years, 26 per cent still remained in this category. On the other hand, 38 per cent died within 10 years and 50 per cent within 20 years. The causes of death were recurrent rheumatic fever with congestive heart failure, angina pectoris, or subacute bacterial endocarditis. The appearance of congestive failure or angina pectoris, in particular, nocturnal angina at rest, was of ominous import with the duration of life after the onset of angina pectoris, in the majority of cases being 1 to 2 years. In these patients the anginal syndrome had certain characteristic features. The most severe attacks occurred at night and without provocation. The recumbent position appeared to be a predisposing factor. Sinus tachycardia, palpitation, generalized flushing of the skin, profuse sweating, and difficult respiration were essential features of the attack usually preceding the onset of pain. Because of intractable congestive heart failure and angina pectoris surgical relief with the plastic valve of Hufnagel was attempted in 14 patients. Favorable results were obtained in 40 per cent with extraordinary benefits in a few, so that this physiologic compromise is recommended for those patients in serious difficulty until a more promising procedure is available.

SAGALL
REFERENCES


In a clinical and pathologic study of the cardiovascular and renal lesions of 17 autopsied patients with Cushing's syndrome, hypertension was found in all patients even though only 2 were more than 40 years of age. In 15 patients the heart was enlarged. Three patients died in congestive heart failure with pulmonary edema. In 8 patients changes in the arterioles of the kidneys, liver, pancreas, and skeletal muscles were demonstrated that could not be differentiated from the arteriolar lesions frequently associated with essential hypertension. In 11 patients renal calculi or nephrocalcinosis or both were found, and in 8 per cent these osteoporosis was also present. The results of this study emphasize the seriousness of Cushing's syndrome from the standpoint of changes in the cardiovascular system and kidneys of a relatively young group of patients.

Sagall
in its conventional application. J. Appl. Physiol. 5: 635, 1953.

Because I see many men doubtful in the Circulation, and some men oppose such things which understand them not aright, as I intended them, I shall briefly rehearse out of my Book of the motion of the heart and blood, what I did there intend. The blood which is contain'd in the veins (as in its own hold) where it is most abundant (to wit, in the vena cava) near to the Basis of the heart and the right ear, growing hot by little and little by its own internal heat, and made thin, it swells and rises (like leaven) whence the ear being first dilated, and afterwards contracting it self by its pulsifick faculty, straightsways drives it out into the right ventricle of the heart, which being fill'd in its Systole, and consequently freeing it self from that blood which is driven into it (the three-pointed portals refusing passage to it) it drives the same blood into the vena arteriosa (where the passage is open) by which it does distend it. Now the blood in the arterious vessel being not able to return against the Sigmoidal portals, but because the lungs are extended, amplified, and restricted both by inspiration and expiration, and likewise their vessels, they give passage to this blood into the arteria venosa: of which the left ear keeping together equal motion, time and order, with the right ear, and performing its function, sends the same blood into the left ventricle, as the right sent into the right, whence the left ventricle together, and at the same time with the right (since it can gain no regress, by reason of the portals which hinder its return) drives it into the capaciousnesse of the aorta, and consequently into all the branches of the arte; the arteries being filled with this sudden pulse, being not able so suddenly to disburthen themselves, are distended, suffer an impulsion and Diastole.—William Harvey. De Circulatione Sanguinis, 1649.


This investigation shows that the presence or absence of the pulmonary component of the second sound and its delay in relation to the aortic component are of considerable help in the diagnosis of pulmonary stenosis and its degree. In mild pulmonary stenosis (11 cases with right ventricular pressure 15 to 40 mm. Hg, gradient 6 to 26 mm. Hg) the first sound is normal and followed in 0.02 to 0.06 second by a pulmonary clicking ejection sound and then by a short murmur best heard in expiration. The second sound is of normal intensity but widely split (0.03 to 0.06 second) and more so in expiration. In moderate and severe stenosis (33 cases with right ventricular pressure 50 to 160 mm. Hg, and right ventricular hypertrophy clinically and electrocardiographically) the pulmonary ejection sound was absent except in 5 with moderate stenosis. A loud prolonged systolic murmur was present at the pulmonic area, which frequently extended beyond and drowned the aortic component of the second sound. In the left third and fourth interspace a soft pulmonic component could be heard except in severe stenosis. In this region an abnormally widely split second sound (0.05 to 0.14 second) could be detected. The time interval between these 2 components was closely related to the right ventricular pressure and was due to delay in closure of the pulmonary valve. In Fallot's tetralogy (26 cases) the first sound was normal, rarely followed by an aortic ejection sound and the second sound was single.
RECORD SUM ALLOCATED BY AHA TO 183 INVESTIGATORS

A record sum of approximately $1,465,000 has been allocated by the American Heart Association to support 183 investigators and to provide five special departmental grants during the fiscal year starting July 1, 1958. Still to be awarded are grants-in-aid for research projects which will be announced later this year. The national research program is supported jointly by the Heart Association and its state and local affiliates.

The initial 1958-1959 Heart Association research awards include several innovations. A new category, Advanced Research Fellowship, has been added, with stipends ranging from $4,600 to $6,500 per annum (according to number of dependents.) A sum of $500 will be paid to the department in which each Advanced Research Fellow works. Recipients of this award will constitute a group between the Research Fellow and the Established Investigator.

To help meet rising costs of living and of research, stipends and allotments have been increased. The annual base stipend of all Established Investigators will be increased by $500. They will also receive an allowance of $500 for each dependent. For the first time, an additional sum of $500 to help defray expenses incurred by the investigator’s research will be allotted to the department in which he works.

Included in this year’s allocations are three Career Investigators, 84 Established Investigatorships, 34 Advanced Research Fellowships and 62 Research Fellowships. Six of the Established Investigators will receive simultaneous grants to provide technical assistance and other technical aid for their projects. In addition, 5 special departmental grants have been awarded.

The $1,465,000 awarded in these categories represents an increase of $488,000 over the $977,000 awarded last year, exclusive of Grants-in-Aid. In the year 1957-58 it is estimated that the combined research allocations of the American Heart Association and its affiliates and chapters will reach $7,000,000.

A complete list of award recipients appears at the end of this section.

AHA SCIENTIFIC SESSIONS:
DEADLINE FOR ABSTRACTS
IS JUNE 13, 1958

The Heart Association urges early submission of abstracts of scientific papers to be presented at the 31st Annual Scientific Sessions of the Association in San Francisco, October 24-26. Deadline is June 13, 1958.

Papers intended for presentation should be based on original investigations in or related to the cardiovascular field. Abstracts will be accepted only on forms which are obtainable from F. J. Lewy, M.D., Assistant Medical Director, American Heart Association, 44 East 23rd Street, New York 10, N.Y.

The Scientific Sessions will feature a section for scientific and industrial exhibits. Requests for space for scientific exhibits must be made on application forms obtainable from Dr. Lewy. Applications must be submitted not later than June 13, 1958. Applications for industrial exhibits may be requested through Steven K. Herlitz, Inc., 280 Madison Avenue, New York 16, N.Y.
HAWAII TO CONDUCT POST-MEETING SESSIONS

Following the 31st Annual Scientific Sessions of the American Heart Association in San Francisco, October 24-26, a post-meeting tour which includes two days of scientific sessions will be conducted by the Hawaii Heart Association. Arrangements to attend should be made through H. Douglas Chisholm, Associate Director of Administration, American Heart Association, 44 East 23rd Street, New York, N.Y., or directly through the American Express Company, 65 Broadway, New York, N.Y.

DR. GEORGE E. WAKERLIN APPOINTED MEDICAL DIRECTOR OF AMERICAN HEART ASSOCIATION

George E. Wakerlin, M.D., formerly Professor and Head of the Department of Physiology, University of Illinois College of Medicine, Chicago, has been appointed Medical Director of the American Heart Association.

In his new position, Dr. Wakerlin will plan and direct the medical and scientific programs of the Association. He fills the post held by Dr. Eugene B. Ferris until his untimely death from a heart attack last September.

Before assuming his position at the University of Illinois College of Medicine in 1937, Dr. Wakerlin was successively Assistant, Associate and full Professor and Head of the Department of Physiology and Pharmacology at the University of Louisville. The new Medical Director previously served the American Heart Association as Chairman of the Medical Advisory Board of the Council on High Blood Pressure Research, as Chairman of the Committee on Professional Education, and as a member of the Scientific Council. He has been a member of the Association's Council for Community Service and Education and of the Editorial Board of Circulation.

Dr. Wakerlin, who has devoted twenty-five years of his career as a medical investigator to the study of high blood pressure, is a former member of the Executive Committee and Board of Governors of the Chicago Heart Association. He is also past-President of the Chicago Nutrition Association and has served, as well, as Vice President of the Chicago Society for Internal Medicine and as Chairman of the Illinois Section of the Society for Experimental Biology and Medicine. He is a member of the American Society for the Study of Arteriosclerosis.

Dr. Wakerlin was born and educated in Chicago. He received his Ph.D. degree at the University of Chicago in 1926 and his medical degree at the University's Rush Medical College in 1929. He is widely known as a lecturer and has published numerous scientific papers.

1957 AHA ANNUAL REPORT ISSUED

The recently issued 1957 Annual Report of the American Heart Association, entitled "The First Decade," traces the growth of the organized struggle against heart disease since 1948, when the Association was reconstituted as a national voluntary health agency. Included is a review of advances in cardiovascular medicine and research during this period.

In its summary of events in 1957, the re-
port notes that the percentage of funds spent in support of research by the Association's national office rose to 56.5 per cent. It points out that a total of $31,406,303 has been channeled into research by the Association and its state and local affiliates over the 10-year period.

**NBC-TV RESEARCH SERIES BEING PRESENTED BY AHA**

A new series of television programs designed to interest young people in careers as research investigators is currently being presented by NBC-TV and the American Heart Association in cooperation with the Educational Television and Radio Center. Assisted by a grant from E.R. Squibb and Sons, a division of Olin Mathieson Chemical Corporation, the programs may be seen on Mondays from 6 to 6:30 p.m., EST over stations of the Educational Television network and on some regular NBC-TV network stations. Kinescopes will be shown later on a delayed broadcast basis. Local Heart Associations will use the kinescopes in connection with their programs to stimulate young people to choose careers in the health field.

**ARTERIOSCLEROSIS SOCIETY ABSTRACTS DUE MAY 31**

May 31, 1958 is the deadline for submitting abstracts of papers to be presented at the Annual Meeting of the American Society for the Study of Arteriosclerosis in San Francisco, October 24-26. Abstracts should be sent in quadruplicate to Forrest Kendall, Ph.D., Goldwater Memorial Hospital, Welfare Island 17, N.Y. The Society will hold its meeting simultaneously with the Annual Scientific Sessions of the American Heart Association. Several joint programs are being planned at that time.

**CARDIOVASCULAR TRAINING PROGRAM AT GEORGIA COLLEGE**

The Heart Association and the National Heart Institute are jointly sponsoring a Postgraduate Cardiovascular Research and Training Program to be conducted beginning July 1 in the Department of Physiology and Pharmacology at the Medical College of Georgia, Augusta. Trainees will receive a stipend of $3800 plus $350 for each dependent and allotments to cover certain other expenses. Appointments will be for one year. Applications may be obtained from either W. F. Hamilton, M.D., or R.P. Ahlquist, M.D., directors of the program, Medical College of Georgia.

**STEROID BIOCHEMISTRY TRAINING PROGRAM**

A Training Program for Steroid Biochemistry, sponsored by the National Cancer Institute of the National Institutes of Health, will begin October 1, 1958 at the Worcester Foundation for Experimental Biology, Worcester, Mass. Two groups of candidates will be selected for training. Postdoctoral candidates having an M.D. or Ph.D. degree will receive $5000 for a one-year training period. Candidates with a B.S. or M.S. degree or equivalent training will receive $1500 for a 6 months' period. Applications, which close June 1, 1958, may be obtained from the Department of Chemistry, Clark University, Worcester, Mass.

**MEETINGS CALENDAR**


April 14: Ohio State Heart Association Annual Meeting, Scientific Session on Arteriosclerosis, Cincinnati. Walter S. Page, Jr., 131 E. State Street, Columbus 15, Ohio.


April 24-26: Fifth International Congress of Internal Medicine, Philadelphia. E. R. Loveland, 4200 Pine Street, Philadelphia 4, Pa.


May 4: American Federation for Clinical Research, Atlantic City. William W. Stead, VA Hospital, Minneapolis 17, Minn.


May 6-7: Association of American Physicians,
Atlantic City. P. R. Beeson, Yale University School of Medicine, New Haven 11, Conn.


October 24-26: American Heart Association, 31st Annual Scientific Sessions, San Francisco. American Heart Association, 44 East 23rd Street, New York 10, N.Y.

ABROAD

April 16-19: International Academy of Legal Medicine and Social Medicine, 50th International Congress, Madrid. Prof. B. Piga, Professor of Legal Medicine, Madrid University, Madrid, Spain.


September 14-21: Third World Congress of Cardiology, Brussels. Dr. F. Van Dooren, 80 Rue Mereelis, Brussels, Belgium.

AHA AWARD RECIPIENTS

Following is a list of investigators selected for support during the fiscal year beginning July 1, 1958 by the Heart Association’s Research Committee.

Career Investigators

Coons, Albert H., Harvard University Medical School, Boston.

Lorber, Victor, University of Minnesota Medical School, Minneapolis.

Pappenheimer, John R., Harvard University Medical School, Boston.

Continued Established Investigators

Abelmann, Walter H., The circulation in disorders of metabolism and the regulatory role of the liver, Boston City Hospital and Harvard University Medical School, Boston.


Beck, William S., Rate behavior in metabolic multi-enzyme systems. Massachusetts General Hospital, Boston.

Benesch, Reinhold, The role of sulfhydryl and disulfide groups in biological systems. Marine Biological Laboratory, Woods Hole, Mass.

Boyle, Edwin, Jr., Comparative studies in lipoprotein transport and metabolism concerning atherosclerosis in man, monkey and pigs. Medical College of South Carolina, Charleston.

Brewer, William R., Jr., Hemodynamic and metabolic interrelationships and mechanism of action of the thyroid hormones sympathoadrenal hormones, and the adrenal cortical steroids. Massachusetts General Hospital, Boston.

Briller, Stanley, A., Energytis of the myocardium. University of Pennsylvania School of Medicine, Philadelphia.

Brodsky, William A., Renal and electrolyte metabolism. University of Louisville School of Medicine, Louisville.

Cohn, Mildred, Mechanisms of phosphorylation and phosphate transfer reactions. Washington University School of Medicine, St. Louis.

Combes, Burton, Hepatic metabolism during hepatoportal hemodynamic adjustments. The University of Texas Southwestern Medical School, Dallas.

Conn, Hadley L., Jr., A study of the alterations in pressure-volume-flow relationships within the cardiovascular system produced by direct cardiovascular stresses, and the effect of these alterations on transcapillary kinetics and organ metabolism. Hospital and School of Medicine of the University of Pennsylvania, Philadelphia.

Drell, William, Biochemical studies of the sympathetic nervous system in relation to cardiovascular function. University of California School of Medicine, Los Angeles.

DuBois, Arthur B., Gas exchange in the lungs, mechanics of breathing and pulmonary capillary blood flow. University of Pennsylvania Graduate School of Medicine, Philadelphia.

Eckstein, Richard W., Effect of coronary narrowing, exercise and the thyroid hormone on coronary collateral circulation; coronary shock and coronary collateral circulation. Western Reserve University School of Medicine, Cleveland.

Elkinton, J. Russell, Interrelationships of cardiovascular functions and electrolyte physiology. University of Pennsylvania School of Medicine, Philadelphia.

Epstein, Franklin H., Metabolic and circulatory factors affecting the distribution and excretion of water and electrolytes. Yale University School of Medicine, New Haven.
Farber, Saul J., The role of electrolytes and their relationship to extracellular and intracellular organic constituents in heart disease and other diseases producing edema. New York University College of Medicine, New York.

Farrell, Gordon L., The physiological factors which regulate the secretion of aldosterone. Western Reserve University School of Medicine, Cleveland.

Finnerty, Frank A., Jr., Further studies on the pathogenesis of toxemia of pregnancy and other types of acute hypertension. District of Columbia General Hospital, Washington, D.C.

Flavin, Martin, Jr., Research in enzyme chemistry and intermediary metabolism. National Heart Institute, Bethesda, Md.

Foulkes, Ernest C., Fundamental mechanisms of electrolyte transport across biological membranes. May Institute for Medical Research of the Jewish Hospital Association, Cincinnati.

Gamble, James, L., Jr., Studies of mitochondrial function in relation to electrolyte transport. Johns Hopkins University School of Medicine, Baltimore.

Gibson, David M., Enzymatic synthesis of fatty acids in animal tissues. Institute for Enzyme Research, University of Wisconsin, Madison.

Giebisch, Gerhard, Ion transport across renal tubules of the amphibian and mammalian kidney, utilizing micropuncture techniques. Cornell University Medical College, New York.

Goldthwait, David A., The biosynthesis of purine nucleotides and of ribonucleic acid. Western Reserve University School of Medicine, Cleveland.

Goodall, McChesney, Jr., (1) Biosynthesis of adrenalin and noradrenalin in adrenal glands and sympathetic nerves. (2) Study of various factors, i.e., burns, x-irradiation, "q" exposure, thyroxin anxiety, etc., which affect the biosynthesis and/or the secretion of these hormones. (3) Study of the urinary catabolites of adrenalin and noradrenalin. Duke University School of Medicine, Durham, N. C.

Goodger, Allan V. N., Hemodynamic factors affecting electrolyte metabolism and the renal excretion of electrolytes. Yale University School of Medicine, New Haven.

Gottschalk, Carl W., A micropuncture study of kidney function. University of North Carolina School of Medicine, Chapel Hill, N. C.

Gross, Jerome, Studies on the structure, composition, genesis, function and malfunction of connective tissues. Massachusetts General Hospital, Boston.

Havel, Richard J., Mechanisms of lipid transport and the relation of altered lipid transport to atherogenesis. University of California School of Medicine, San Francisco.

Huckabee, William E., Metabolic reactions to circulatory disturbances and their role in the control of the circulation. Massachusetts Memorial Hospitals, Boston.

Kaplan, Melvin H., Localization of tissue-deposited streptococcal antigens and antibodies in animal and human tissues by means of the fluorescein-labeling technique; study of the pathogenesis of rheumatic fever and rheumatic heart disease in relationship to the autoimmune theory of pathogenesis. Cuyahoga County Hospital, Cleveland.

Katz, Yale J., Studies on renal revascularization in experimental hypertension and renal insufficiency. University of Southern California School of Medicine, Los Angeles.

Kun, Ernest, Pathway of the metabolism of hydroxy acids. University of California School of Medicine, San Francisco.

Kuo, Peter T., Intravascular distribution of lipid particles in clinical arteriosclerosis. University of Pennsylvania Hospital and School of Medicine, Philadelphia.

Lazzarini, Abel A., Jr., Studies of the metabolic and immunological changes occurring in transplanted tissues. New York University Post-Graduate Medical School, New York.


Mackler, Bruce, Studies on the metabolic sequences involved in electron transport in mammalian tissues. Washington University School of Medicine, Seattle.

Mann, George V., Cause and prevention of arteriosclerosis. Vanderbilt University School of Medicine, Nashville.

Mateer, Frank M., Application and assessment of hemodialysis and other forms of treatment in clinical and experimental renal insufficiency and the cardiovascular effects of such procedures. University of Pittsburgh School of Medicine, Pittsburgh.

Matthews, Martin B., The physical chemistry of the acid mucopolysaccharides of connective tissue and their protein complexes. La Rabida-University of Chicago Institute, Chicago.

Metcalfe, James, Changes in the maternal circulation during pregnancy and labor. Boston Lying-in Hospital, Boston.

Mommaerts, Wilfried F. H. M., Chemical-physiological studies on contractile tissues. University of California Medical Center, Los Angeles.

Nelson, Clifford V., (1) The mechanism of fibrillation. (2) Quantitation of the vectorcardio-
gram. Maine Medical Center, Portland, Me.

Padawer, Jacques, Physiology of the mast cell and its relation to cardiovascular function and disease. Albert Einstein College of Medicine of Yeshiva University, New York.

Perry, Horace M., Jr., A study of pathogenesis and treatment of hypertension and atherosclerosis. Washington University School of Medicine, St. Louis.

Ressler, Charlotte, Studies on the separation of the multiple physiological activities of certain polypeptides or proteins. Cornell University Medical College, New York.

Richmond, Jonas E., The role of the prosthetic group of proteins in the biosynthesis and metabolism of conjugated proteins. Harvard University Medical School, Boston.

Rudolph, Abraham M., Pulmonary hypertension in congenital heart disease. Children's Medical Center, Boston.

Sanadi, D. Rao, Studies on biological oxidation and coupled phosphorylation. University of California School of Medicine, Berkeley.

Schmidt-Nielsen, Bodil M., Comparative kidney physiology. Duke University, Durham, N. C.

Schwartz, William B., Disorders of electrolyte metabolism and kidney function. New England Center Hospital, Boston.

Schweet, Richard S., The biological synthesis of protein. City of Hope Medical Center, Duarte, Cal.

Sharp, John T., The physical properties of the lungs in pulmonary edema; studies on the mechanism of increased pulmonary vascular resistance. University of Buffalo School of Medicine and The Buffalo General Hospital, Buffalo.

Singer, Thomas P., Studies on oxidative metabolism of heart tissue. Edsel B. Ford Institute for Medical Research, Henry Ford Hospital, Detroit.

Slade, Hutton D., Biochemistry of the group A hemolytic streptococcus. Northwestern University Medical School, Chicago.

Spencer, Merrill P., Factors affecting distribution of cardiac output. Bowman Gray School of Medicine of Wake Forest College, Winston-Salem, N. C.


Staple, Ezra, Studies in metabolism of cholesterol, mechanisms of synthesis and breakdown of related substances. University of Pennsylvania School of Medicine, Philadelphia.

Stavitsky, Abram B., Studies on basic mechanisms of antibody synthesis; studies on basic cellular mechanisms of allergic reactions. Western Reserve University School of Medicine, Cleveland.


Thal, Alan P., (1) Revascularization of the myocardium; an experimental study designed to test the feasibility of a direct suture anastomosis of extracardiac arteries to the coronary arteries. (2) The mechanism of action of bacteria and bacterial toxins on small blood vessels with particular reference to bacterial shock. University of Minnesota Medical School, Minneapolis.

Ulrich, Frank, The metabolic fate and mechanism (s) of action of adrenal cortical hormones in the peripheral tissues. Yale University School of Medicine, New Haven.


Wessler, Stanford, Pathogenesis of intravascular thrombosis. Beth Israel Hospital and Harvard University Medical School, Boston.

Zweifach, Benjamin W., Histochemical and microchemical analysis of structural elements of blood-tissue barrier. New York University College of Medicine, New York.

New Established Investigators

Albrink, Margaret Joralemon, Effect of metabolic and nutritional factors on serum lipids. Yale University School of Medicine, New Haven.

Daly, Marie M., Arterial metabolism in hypertension. Goldwater Memorial Hospital, Welfare Island, N. Y.


Eckstein, John W., Venomotor responses to circulatory alterations in man. State University of Iowa College of Medicine, Iowa City.

Fresco, Jacques Robert, Macromolecular aspects of nucleic acid structure and function. Harvard University, Cambridge.

Gidez, Lewis Irwin, A study of the factors determining serum lipid composition and concentration. Albert Einstein College of Medicine, Yeshiva University, New York.

Gilbert, James Bryson, The role and the site of binding of the metal ion in metal-containing or metal-activated enzymes. University of California, Berkeley.

Gittlin, David, Studies on blood and tissue proteins. Carlsburg Laboratory, Copenhagen, Denmark.

Jacobs, Earl Edwin, A study of the structural factors involved in mitochondrial oxidative phos-
phorylation mechanisms. Institute for Enzyme Research, The University of Wisconsin, Madison.

Pick, Ruth, Pathogenesis of atherosclerosis and its sequelae. Medical Research Institute, Michael Reese Hospital, Chicago.


Established Investigators-Grantees

Corcoran, John W., A study of the metabolism of the branched chain monosaccharides, and their role in the mammalian and bacterial cell. Western Reserve University School of Medicine, Cleveland.

Goldstein, Robert, Isolation and identification of prothrombin and "serum factors:" Investigation of their role in coagulation and thrombosis. New England Center Hospital, Boston.

Henly, Walter Samuel, Determination of myocardial blood flow in the intact subject utilizing radio-iodinated (\(^{131}\)) human serum albumin. Baylor University College of Medicine, Houston.

Khairallah, Philip A., Studies on reactivity of blood vessels. The Cleveland Clinic Foundation, Cleveland.

Lilienfeld, Lawrence Spencer, The intrarenal circulation. Georgetown University Medical Center, Washington, D.C.

Rubin, Albert L., Investigation of the metabolic alterations in the uremic syndrome. Cornell University Medical College and New York Hospital, New York.

Advanced Research Fellows

Bhonslay, Shivaji B., (1) Pulmonary changes during extra-corporeal circulation. (2) Metabolic changes occurring during extra-corporeal circulation and their relation and degree to different arterial flows. Under Ralph A. Deterling, Jr., Columbia-Presbyterian Medical Center, New York.

Boucot, Nancy George, Alterations in metabolism in renal disease (with preliminary work in intermediary metabolism in the normal animal). Under A. Baird Hastings and James Ashmore, Harvard University Medical School, Boston.

Brady, Allan J., Myocardial tension related to transmembrane potentials and ion fluxes. Under Wilfried F. H. M. Mommaerts, University of California Medical Center, Los Angeles.


Cohn, George L., The formation of an "aldosterone-like" compound by the liver of patients with congestive heart failure after the intravenous administration of cortisol. Under Philip K. Bondy, Yale University School of Medicine, New Haven.

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