CIRCULATION

VOLUME XXXVII
January-June 1968

No. 1 (January)

EDITORIALS:
Ballistocardiography: Predictor of Coronary Heart Disease. Benjamin M. Baker ........................................... 1
Physical Fitness and Cardiovascular Health. G. R. Cumming ...... 4

ORIGINAL ARTICLES:
Impaired Rate of Left Ventricular Filling in Idiopathic Hypertrophic Subaortic Stenosis and Valvular Aortic Stenosis. Scott Stewart, Dean T. Mason, and Eugene Braunwald ......................... 8
Vectorcardiographic Diagnosis of Left Ventricular Hypertrophy. Donald W. Romhilt, Joseph C. Greenfield, Jr., and E. Harvey Estes, Jr. 15
Renin-Angiotensin-Aldosterone System During Chronic Thiazide Therapy of Benign Hypertension. J. J. Bourgoignie, F. J. Catanzaro, and H. M. Perry, Jr. 27
Amiloride: A Potassium-Sparing Natriuretic Agent. Marcia B. Bull and John H. Laragh 45
Surgical Correction of Absence of Proximal Segment of Left Pulmonary Artery. George E. Green, Edmund H. Reppert, Sidney Q. Cohn, and Frank C. Spencer .............. 62
Atrial Fibrillation Produced by Atrial Stimulation. Jacob I. Haft, Sun H. Lau, Emanuel Stein, Bernard D. Kosowsky, and Anthony N. Damato 70
On the Path of the Excitation Wave in Atrial Flutter. George R. Stibitz and David A. Rytand 75
Clinical Significance of Coronary Artery Calcification Seen Fluoroscopically with the Image Intensifier. Johnson McGuire, Harold J. Schneider, and Te-Chuan Chou 82

SPECIAL ARTICLES
Natural History of Congenital Heart Disease: Problems in Its Assessment with Special Reference to Ventricular Septal Defects. Julien I. E. Hoffman ........................................... 97
CONTENTS OF VOLUME XXXVII

Coronary Heart Disease and Future Expectation of Life. Alexander R. P. Walker ........................................ 126

BOOK REVIEWS .................................................................................................................. 132

NEWS FROM THE AMERICAN HEART ASSOCIATION, INCLUDING Presidential Address, AHA 40th Scientific Sessions—The Impact of The American Heart Association on Cardiovascular Research. Lewis E. January ..................................................... 143

No. 2 (February)

ORIGINAL ARTICLES:
Systolic Time Intervals in Heart Failure in Man. Arnold M. Weissler, Willard S. Harris, and Clyde D. Schoenfeld ........ 149

Hemodynamic Effects of Nitroglycerin in Patients with Angina Pectoris Studied by an Atrial Pacing Method. M. H. Frick, R. Balcon, D. Cross, and E. Sowton ......................................................... 160

Intravenous Use of Diazoxide in the Treatment of Severe Hypertension. William M. Hamby, Gerald J. Jankowski, J. Maurice Pouget, George Dunea, and Clarence L. Gantt ........................................... 169

Relation of Sodium Balance to Arterial Pressure During Drug-Induced Saluresis. Frank A. Finnerty, Jr., Michael Davidov, and Nikos Kakaviatos ........................................................................................................ 175

Lipid and Carbohydrate Studies in Coronary Artery Disease. Herman L. Falsetti, J. David Schnatz, David G. Greene, and Ivan L. Bunnell ............................................................. 184

Hemodynamic Consequences of Physical Training after Myocardial Infarction. M. H. Frick and M. Katila .................... 192


Paroxysmal Ventricular Fibrillation in Two Patients with Hypomagnesemia: Treatment by Transvenous Pacing. Henry S. Loeb, Raymond J. Pietras, Rolf M. Gunnar, and John R. Tobin, Jr. ................... 210

Drug Therapy of Dissecting Aortic Aneurysms: Some Reservations. Joseph Lindsay, Jr. and J. Willis Hurst ..................... 216

Effects of Isoproterenol on the Pulmonary Blood Volume in Patients with Valvular Heart Disease and Primary Myocardial Disease. Bernard F. Schreiner, Jr., Gerald W. Murphy, Douglas H. James, and Paul N. Yu ......................................................................................................................... 220


The Force Ballistocardiogram as an Index of Severity in Congenital Aortic Stenosis. L. M. Bargeron, Jr. .......................... 238

Correction of Shunt from Right Conal Coronary Artery to Pulmonary Trunk with Relief of Symptoms. Gerald B. Lee, Fredarick L. Gobel, C. Walton Lillehei, Walter S. Neff, and Robert S. Eliot ......................... 244 (Continued)
CONTENTS OF VOLUME XXXVII

Double-Inlet Left Ventricle: Two Pathological Specimens with Comments on the Embryology and on Its Relation to Single Ventricle. Maria V. de la Cruz and B. Lynn Miller ........................................... 249

Atrial Septal Defect in Patients over the Age of Forty Years: Clinical and Hemodynamic Studies and the Effects of Operation. James H. Gault, Andrew G. Morrow, William A. Gay, Jr., and John Ross, Jr. ... 261

Spontaneous Aortic Cusp Rupture Associated with Valvular Myxomatous Transformation. Kevin P. O'Brien, George C. Hitchcock, Brian G. Barratt-Boyes, and James B. Lowe .................................................. 273

SPECIAL ARTICLE:
Some Aspects of the Biological Role of Adenosine 3',5'-monophosphate (Cyclic AMP). Earl W. Sutherland, G. Alan Robison, and Reginald W. Butcher ................................................................. 279

NEWS FROM THE AMERICAN HEART ASSOCIATION

No. 3 (March)

EDITORIAL:

ORIGINAL ARTICLES:

Observation and Simulation of the Circulation, Acid-Base Balance, and Response to CO2 in Cheyne-Stokes Respiration. Ramon L. Lange, James T. Botticelli, Robert P. Carlisle, Theofilos J. Tsagaris, and James D. Horgan ............................................................. 331

Comparative Exercise Cardiorespiratory Performance of Normal Men in the Third, Fourth, and Fifth Decades of Life. John S. Hanson, Burton S. Tabakin, and Arthur M. Levy ...................................................... 345

Effects of Aminophylline on the Pulmonary Circulation and Left Ventricular Performance in Patients with Valvular Heart Disease. Gerald W. Murphy, Bernard F. Schreiner, Jr., and Paul N. Yu ............ 361

Arterial Pressure Responses to Discontinuing Antihypertensive Drugs. Harriet P. Dustin, Irvine H. Page, Robert C. Tarazi, and Edward D. Frohlich .................................................................................................................. 370


Late, Heparin-Induced Bleeding after Retrograde Arterial Catheterization. J. David Bristow, Arthur J. Seaman, Frank E. Kloster, Rodney H. Herr, and Herbert E. Griswold .............................................................. 393

Intrapericardial Aneurysmal Dilatation of the Left Atrial Appendage. Thomas F. Godwin, Pierre Auger, James A. Key, and E. Douglas Wigle ........................................................................................................... 397

Muscle Blood Flow During Exercise in Intermittent Claudication: Validation of the 133Xenon Clearance Technique: Clinical Use by Comparison to Plethysmography and Walking Distance. K. H. Tjønnesen .................................................................................................................. 402

(Continued)


Relationship of Right Bundle-Branch Block and Marked Left Axis Deviation (with Left Parietal or Peri-infarction Block) to Complete Heart Block and Syncope. Richard P. Lasser, Jacob I. Haft, and Charles K. Friedberg ........ 429

Sex Differences in the Vectorcardiogram. Iwao Sotobata, Harold Richman, and Ernst Simonson ........ 438

The Coronary Arteries in Coarctation of the Aorta. Zeev Vlodaver and Henry N. Neufeld ........ 449

REPORT OF COMMITTEE ON GRADING LESIONS, COUNCIL ON ARTERIOSCLEROSIS, AMERICAN HEART ASSOCIATION:


NEWS FROM THE AMERICAN HEART ASSOCIATION ........ 469

No. 4 (April)

EDITORIAL:
The Meaning of the 1967 Stouffer Prize. Irvine H. Page and James W. McCubbin ........ 473

ORIGINAL ARTICLES:
Atrial Pressure-Flow Dynamics in Atrial Septal Defects (Secundum Type). Aaron R. Levin, Madison S. Spach, John P. Boineau, Ramon V. Canent, Jr., M. Paul Capp, and Paul H. Jewett ........ 476

The In Vivo Determination of Left Ventricular Volume: Comparison of the Fiberoptic-Indicator Dilution and the Angiocardiographic Methods. Paul G. Hugenholtz, Henry R. Wagner, and Harold Sandler 489

A Quantitative Angiocardiographic Study of Left Ventricular Hypertrophy and the Electrocardiogram. William A. Baxley, Harold T. Dodge, and Harold Sandler ........ 509

False Aneurysm of the Left Ventricle Secondary to Bacterial Endocarditis with Perforation of the Mitr-al-Aortic Intervalvular Fibrosa. Elliot Chesler, Michael E. Korns, Gerald E. Porter, Cesar N. Reyes, and Jesse E. Edwards ........ 518

Role of the Capacitance and Resistance Vessels in Vasovagal Syncope. Stephen E. Epstein, Morris Stampfer, and G. David Beiser .... 524

(Continued)
INDEX


Effects of Atrial Fibrillation on Exercise Performance in Patients with Cardiac Disease. Tom R. Hornsten and Robert A. Bruce .............. 543

Double Internal Mammary Artery-Myocardial Implantation: Clinical Evaluation of Results in 150 Patients. René G. Favaloro, Donald B. Effler, Laurence K. Groves, David J. G. Fergusson, and José S. Lozada 549

Effects of Physical Training in Dogs with Coronary Artery Ligation. Eliezer Kaplinsky, William B. Hood, Jr., Brian McCarthy, H. Louis McCombs, and Bernard Lown ................. 556

The Anatomic Atrial Connections Between Sinus and A-V Node. John Merideth and Jack L. Titus .................. 566


Notched T Waves in Young Persons with Central Nervous System Lesions. Kay Millar and J. A. Abildskov ..................... 597

The Frontal Plane Vectorcardiogram in Old Inferior Myocardial Infarction: Criteria for Diagnosis and Electrocardiographic Correlation. Eliot Young and Conger Williams ...................... 604

Indirect Systolic Pressures and Pulse Waves in Arterial Occlusive Disease of the Lower Extremities. Stefan A. Carter .................. 624


SPECIAL REPORT: Ultrastructure of the Human Carotid Body: A Perspective on the Mode of Chemoreception. Philip M. Grimley and George G. Glenner 648

BOOK REVIEWS .................................................. 666

NEWS FROM THE AMERICAN HEART ASSOCIATION ................ 668

No. 5 (May)

EDITORIALS:

The Supplement on Complications of Cardiac Catheterization. Howard B. Burchell and Patrick A. Ongley .................. 675

Cardiovascular Auscultation. Howard B. Burchell .................. 677

ORIGINAL ARTICLES:

Atrial Echo Beats in the Human Heart Elicited by Induced Atrial Premature Beats. R. M. Schuilenburg and D. Durrer .................. 680


(Continued)

Left Ventricular Function in Children Studied by Increasing Peripheral Resistance with Angiotensin. L. Jerome Krovetz, Thomas G. McLoughlin, and Gerold L. Schiebler

Effects of Reserpine Therapy on Cardiac Output and Atrioventricular Conduction During Rest and Controlled Heart Rates in Patients with Essential Hypertension. Stafford I. Cohen, Melvin W. Young, Sun H. Lau, Jacob I. Haft, and Anthony N. Damato

Alterations in Regional Pulmonary Blood Flow in Patients with Congenital Heart Disease Studied by Radioisotope Scanning. William F. Friedman, Eugene Braunwald, and Andrew G. Morrow

Idiopathic Hypertrophic Subaortic Stenosis: Clinical Analysis of 126 Patients with Emphasis on the Natural History. Stuart Frank and Eugene Braunwald

A Study of Mitral Valve Action Recorded by Reflected Ultrasound and Its Application in the Diagnosis of Mitral Stenosis. Adib Zaky, William K. Nasser, and Harvey Feigenbaum


Natural History and Prognosis of Atrial Septal Defect. Robert J. Craig and Arthur Selzer

Ventricular Septal Defect of Atrioventricular Canal Type with Straddling Right Atrioventricular Valve and Mitral Valve Deformity. G. C. Rastelli, Patrick A. Ongley, and Jack L. Titus

Thromboembolic Complications of Prosthetic Cardiac Valves. Mohammed Akbarian, W. Gerald Austen, Peter M. Yurchak, and J. Gordon Scannell

Effects of Five Per Cent Dextrose-Water Infusions in Normal and Hypertensive Man: Evidence for Increased Proximal and Distal Tubular Sodium Rejection by Hypertensive Patients and Its Relation to Renal Hemodynamics. Paul J. Cannon

Iliofemoral Venous Thrombectomy: Indications, Technique, and Results in Forty-five cases. Gardner W. Smith

An Enquiry into the Role of Cobalt in the Heart Disease of Chronic Beer Drinkers. H. Kesteloot, J. Roelant, J. Willems, J. H. Claes, and J. V. Joossens


BOOK REVIEWS

NEWS FROM THE AMERICAN HEART ASSOCIATION

No. 6 (June)

EDITORIALS:

Cardiac Isomers—A Pedagogic Exercise in the June Supplement. Howard B. Burchell and Jack L. Titus

(Continued)
CONTENTS OF VOLUME XXXVII

Saint Christopher to the Heart—Assisted Circulation. Howard B. Burchell and Eugene F. Bernstein ........................................... 877

ORIGINAL ARTICLES:

Left Ventricular Pressure-Volume Characteristics in Congenital Heart Disease. M. M. Jarmakani, Sam B. Edwards, Madison S. Spach, Ramon V. Canent, Jr., M. Paul Capp, Mary J. Hagan, Roger C. Barr, and Vishnu Jain ................................................................. 879

The Apexcardiogram in Myocardial Asynnergy. Francis J. Lane, John M. Carroll, Harold D. Levine, and Richard Gorlin ........................................... 890

Hemodynamic Effects of Diuresis at Rest and During Intense Upright Exercise in Patients with Impaired Cardiac Function. Morris Stapper, Stephen E. Epstein, G. David Beiser, and Eugene Braunwald ........................................... 900

Evaluation of Operative Left Ventricular Outflow Tract Lesions with a Fluid Impedance Plot. Merrill P. Spencer and L. Henry Edmunds, Jr. ........................................... 912


Prevalence of Coronary Heart Disease in an Urban Population in Northern India. S. G. Sarvotham and J. N. Berry ........................................... 939

Disparities Between Aortic and Peripheral Pulse Pressures Induced by Upright Exercise and Vasomotor Changes in Man. Loring B. Rowell, George L. Brengelmann, John R. Blackmon, Robert A. Bruce, and John A. Murray ........................................... 954

Hemodynamic Effects of Lidocaine in Patients with Heart Disease. Richard R. Schumacher, Alan D. Lieberzon, Richard H. Childress, and John F. Williams, Jr. ........................................... 965

Calcific Pulmonic Stenosis. William C. Roberts, Dean T. Mason, Andrew G. Morrow, and Eugene Braunwald ........................................... 973


Left Atrial Rhythm: Experimental Production in Man. Barry C. Harris, James A. Shaver, Samuel Gray, III, Frank W. Kroetz, and James J. Leonard ........................................... 1000

Differentiation of Ventricular Tachycardia from Junctional Tachycardia with Aberrant Conduction: The Use of Competitive Atrial Pacing. Robert M. Easley, Jr., and Sidney Goldstein ........................................... 1015

Temporal Alternation of Atrial Flutter Sounds. D. Emslie-Smith and E. H. O. Parry ........................................... 1020

Incidence of Suppressed Renin Activity and of Normokalemic Primary Aldosteronism in Hypertensive Negro Patients. Morton C. Creditor and Una K. Loschky ........................................... 1027

Autoimmune Studies in Patients with Primary Myocardial Disease. Gerald F. Fletcher and Nanette K. Wenger ........................................... 1032

(Continued)
CONTENTS OF VOLUME XXXVII


Ultrastructure of the Human Atrioventricular Node. Thomas N. James and Libi Sherf ................................................................. 1049

The Biology of Myocardial Infarction. Gunnar Biörck .................. 1071

BOOK REVIEWS .............................................................................. 1086

NEWS FROM THE AMERICAN HEART ASSOCIATION ..................... 1088

VOLUME AUTHOR INDEX .............................................................. 1091

VOLUME SUBJECT INDEX ............................................................. 1093