VOLUME XVIII

July—December, 1958

CIRCULATION

Official Journal of the American Heart Association

No. 1

EDITORIAL

THE SURGICAL TREATMENT OF ACQUIRED VALVULAR DISEASE. Dwight E. Harken .......................................................... 1

RELATIONSHIP OF DEGREE OF ATHEROSCLEROSIS OF INTERNAL CAROTID SYSTEM IN THE BRAIN OF WOMEN TO AGE AND CORONARY ATHEROSCLEROSIS. Malcolm D. Winter, Jr., George P. Sayre, Clark H. Millikan and Nelson W. Barker .......................................................... 7

SOME EVIDENCE FOR ACTIVE CONSTRICTION IN THE HUMAN PULMONARY VASCULAR BED. Dali J. Patel, Ramon L. Lange and Hans H. Hecht ... 19

THE SYNDROME OF DEXTROVERSION OF THE HEART. Robert P. Grant .... 25

SERUM GLUTAMIC OXALOACETIC TRANSAMINASE IN DISSECTING ANEURYSM OF THE THORACIC AORTA. John B. Tredway and Edward E. Kemble ... 37

CHANGING FREQUENCY OF ATHEROSCLEROSIS IN MAMMALS AND BIRDS AT THE PHILADELPHIA ZOOLOGICAL GARDEN: REVIEW OF AUTOPSY RECORDS. H. L. Ratcliffe and M. T. I. Cronin ........................................... 41

PULMONARY VALVE OBSTRUCTION DURING CARDIAC CATHETERIZATION. Milton H. Paul and Abraham M. Rudolph ........................................ 53


PULSUS ALTERNANS IN AORTIC STENOSIS: HEMODYNAMIC OBSERVATIONS IN 50 PATIENTS STUDIED BY LEFT HEART CATHETERIZATION. Theodore Cooper, Eugene Braunwald and Andrew G. Morrow .................. 64

NEPHROGENIC HYPERTENSION (GOLDBLATT KIDNEY) FOLLOWING OPERATIVE TRAUMA TO THE RENAL ARTERY. Richard T. McDonald, D. Emerick Szilagyi and Roger F. Smith ........................................ 71

CLEARING FACTOR INHIBITOR IN HUMAN ATHEROSCLEROSIS. Allan J. Day and Graham N. Wilkinson ........................................ 76

MOVEMENTS AND FORCES OF THE HUMAN HEART. V. PRECORDIAL MOVEMENTS IN RELATION TO ATRIAL CONTRACTION. T. R. Harrison, John A. Lowder, Lloyd L. Hefner and Donald C. Harrison ........................................ 82

COMPARATIVE SEVERITY OF ATHEROSCLEROSIS IN COSTA RICA, GUATEMALA AND NEW ORLEANS. Carlos Tejada, Ira Gore, Jack P. Strong and Henry C. McGill, Jr. .................................................... 92

EFFECT OF POTASSIUM ON CONDUCTION AND ECTOPIC RHYTHMS IN ATRIAL FIBRILLATION TREATED WITH DIGITALIS. Charles Fisch, Paul J. Shields, S. Anthony Ridolfo and Harvey Feigenbaum ........................................ 98
CLINICAL CONFERENCE
Polycthemia: A Manifestation of Heart Disease, Lung Disease or a Primary Blood Dyscrasia. George N. Bedell, Raymond F. Sheets, Harry W. Fischer and Ernest O. Theilen.......................... 107

CLINICAL PROGRESS

ABSTRACTS ................................................................. 138

AMERICAN HEART ASSOCIATION ............................................. 153

CONTRIBUTORS TO THIS ISSUE ............................................. 159

EDITORIAL
Nondestructive Testing. Charles T. Dotter.......................... 161


Electrocardiographic Diagnosis of Ventricular Hypertrophy in the Presence of Right Bundle-Branch Block. Richard W. Booth, Te-Chuan Chou and Ralph C. Scott.......................... 169

Effect of Cooling and of Smoking Tobacco upon the Blood Flow of Reactive Hyperemia of the Foot. Jay D. Coffman, J. Edwin Wood and Robert W. Wilkins......................... 177


Effect of Atherosclerosis and Age upon the Serum Mucoprotein and Hexosamine Levels in Man. Colin J. Schwartz and Hugh R. Gilmore .......................... 191

Sodium Chloride Excretion Following Salt Loading in Hypertensive Subjects. Paul T. Cottier, John M. Weller and Sibley W. Hoobler............ 196

Persistence of Fetal Ductus Function after Birth: The Ductus Arteriosus as an Avenue of Escape. Herbert L. Abrams.......................... 206

Electrocardiographic Changes during Hemodialysis with the Artificial Kidney. Albert L. Rubin, Glenn D. Lubash, Burton D. Cohen, David Brailovsky, Warren S. Braverman and E. Hugh Luckey ..................... 227

Effects of Racemic Epinephrine Inhalation on Cardiopulmonary Function in Normal Man and in Patients with Chronic Pulmonary Emphysema. James K. Alexander, Junichi Mise, Edward W. Dennis and Robert L. Hershberger.......................... 235

Pulse Pressure Response to a Standard Exercise Stress. G. H. Heidorn .......................... 249

Lead Field Scalar and Loop Spatial Electrocardiography: A Preliminary Survey on Normal Adult Males and Comparison with Other Methods. R. C. Jordan and F. W. Beswick.......................... 256

CLINICAL PROGRESS
Cardiovascular Reactions to Symbolic Stimuli. Stewart Wolf........... 287

ABSTRACTS ................................................................. 293

AMERICAN HEART ASSOCIATION ............................................. 315

CONTRIBUTORS TO THIS ISSUE ............................................. 319
EDITORIAL


Serum Phospholipids: Genetic and Environmental Influences. Louis E. Schaefer, David Adlersberg and Arthur G. Steinberg ................. 341

Postural Hypotension: Variations in Different Drugs and Different Patients. Philip L. Dern .................................................. 348

Ventricular Activation in the Pre-Excitation Syndrome (Wolff-Parkinson-White). Robert P. Grant, Fred B. Tomlinson and James K. Van Buren .................................................. 355

A Study of the Manifestations of Rheumatic Fever Following Cessation of Therapy. Edward E. Fischel, Charles W. Frank and Marjorie T. Bellows .................................................. 367


Plasma-Clearing Effect of Gastric Mucin in Healthy and Atherosclerotic Subjects Under Basal Conditions. Baldo Rossi and Vincenzo Rulli .................................................. 397

Plasma Turbidity Changes and Electrocardiographic Alterations Induced by Alimentary Hyperlipemia in Anginal Patients before and after the Administration of Gastric Mucin. Vincenzo Rulli and Baldo Rossi .................................................. 400

Persistent Right Jugular Lymph Sac Simulating Cervical Tumor. Israel S. Steinberg .................................................. 405

The Deep S Wave in Leads V1, V2, and V3 in Right Ventricular Hypertrophy. Herbert Shubin and David C. Levinson ................. 410

Perforation of the Heart during Cardiac Catheterization and Selective Angiocardiography. Doris J. W. Escher, Jerome H. Shapiro, Berta M. Rubinstein, Elliott S. Hurwitt and Sidney P. Schwartz ................. 418

CLINICAL CONFERENCE

Cor Pulmonale in a Case of Interstitial Fibrosis of the Lungs with Death in a Sickle-Cell Crisis. Walton R. Akenhead, Ronald A. Welsh and Edgar Hull .................................................. 423

CLINICAL PROGRESS


Book Reviews .................................................. 447

Books Received .................................................. 448

Abstracts .................................................. 450

American Heart Association .................................................. 468

Program and Proceedings of the Twelfth Annual Meeting of the American Society for the Study of Arteriosclerosis .................. 480

Contributors to This Issue .................................................. 513
CONTENTS OF VOLUME XVIII

No. 4

Editorial

Tenfold in Ten Years. A. C. Corcoran and John H. Peters.............. 515
Lipid Keratopathy and Atheroma. David G. Cogan and Toichiro Kuwabara ......................................................... 519
Constrictive Pericarditis: Serial Hemodynamic Studies with an Ex-
planation for Reversible Congestive Phenomena. Timothy R. Murphy,
Julius M. Meyer and Jules Chase ...................................... 526
The Pathology of Hypertensive Pulmonary Vascular Disease: A De-
scription of Six Grades of Structural Changes in the Pulmonary
Arteries with Special Reference to Congenital Cardiac Septal
Defects. Donald Heath and Jesse E. Edwards......................... 533
The Electrocardiographic Findings in Small, Atypical Myocardial
Infarcts. A. Henry Clagett, Jr. ........................................... 548
Late Hemodynamic Complications of Anastomotic Surgery for Treat-
ment of the Tetralogy of Fallot. Richard S. Ross, Helen B. Taussig
and Melvin H. Evans ..................................................... 553
A Reversible Nephrotic Syndrome Associated with Congestive Heart
Failure. W. Richard Burack, Jack Pryce and John F. Goodwin ....... 562
An Electrocardiographic Analysis of Sixty-Five Cases of Mitral Re-
gurgitation. L. G. Bentivoglio, J. F. Uricchio, A. Waldow, W. Likoff
and H. Goldberg ......................................................... 572
The Splanchnic Blood Volume in Congestive Heart Failure. Elliot
Rapaport, Myron H. Weisbart and Milton Levine ..................... 581
Results of Surgery for Congenital Pulmonary Stenosis. John S. Han-
son, Danae Ikkos, Clarence Crafoord and Carl-Olof Ovenfors ....... 588
Electrocardiographic Changes in Acute Subendocardial Infarction. I.
Large Subendocardial and Large Nontransmural Infarcts. Roderick
W. Cook, Jesse E. Edwards and Raymond D. Pruitt ................. 603
Electrocardiographic Changes in Acute Subendocardial Infarction. II.
Small Subendocardial Infarcts. Roderick W. Cook, Jesse E. Edwards
and Raymond D. Pruitt .................................................. 613
Quantitation of Valvular Regurgitation from Multiple Indicator-
Dilution Curves. Ramon L. Lange and Hans H. Hecht ................ 623
The Ballistocardiogram in Juvenile Diabetes Mellitus. Robert E.
Rakel, Thomas G. Skillman and John R. Braunstein ................. 637
Technic for Non-Surgical Insertion of Large Polyethylene Tubing
into Blood Vessels. Charles T. Dotter and Josef R. Smith ......... 640
Clinical Progress

The Effectiveness of Long-Term Treatment of Malignant Hyperten-
sion. Harriet P. Dustan, Roland E. Schneckloth, A. C. Corcoran
and Irvine H. Page ...................................................... 644
Abstracts ........................................................................ 652
Contributors to This Issue ................................................. 673

No. 5

Editorial

Strokes—Progress and Problems. Irving S. Wright .................... 819
Work and Heart Disease. I. A Physiologic Study in the Factory.
Amasa B. Ford and Herman K. Hellerstein ............................. 823
CONTENTS OF VOLUME XVIII

VENTRICULAR SEPTAL DEFECT IN INFANTS AND CHILDREN: A CORRELATION OF CLINICAL, PHYSIOLOGIC, AND AUTOPSY DATA. Donald C. Fyler, Abraham M. Rudolph, Martin H. Wittenborg and Alexander S. Nadas............ 833

REVERSE WENCKEBACH BLOCK AND COMPLETE ATRIOVENTRICULAR DISSOCIATION DUE TO POTASSIUM AND DIGITALIS. Charles Fisch and S. Anthony Ridolfo ................................................................. 852

THE DIAGNOSIS OF CIRCULATORY SHUNTS BY THE NITROUS OXIDE TEST: IMPROVEMENTS IN TECHNIC AND METHODS FOR QUANTIFICATION OF THE SHUNT. Richard J. Sanders and Andrew G. Morrow............. 856

THE CLINICAL MEASUREMENT OF RETINAL ARTERIAL PRESSURE. Richard B. Perry and John C. Rose................................................................. 864

PATENT DUCTUS ARTERIOSUS WITH PULMONARY HYPERTENSION SIMULATING VENTRICULAR SEPTAL DEFECTS: DIAGNOSTIC CRITERIA IN TEN SURGICALLY PROVEN CASES. Juan L. Gonzalez-Cerna and C. Walton Lillehei................. 871

EXCESSIVE URINARY 5-HYDROXY-3-INDOLE ACETIC ACID IN THE ABSENCE OF A METASTATIC CARCINOID. Fäber F. McMullen, Jr. and Hugh H. Hanson 883

FUNCTIONAL DIAGNOSIS OF PATENT DUCTUS ARTERIOSUS STUDIED BY CINEANGIOCARDIOGRAPHY IN FIFTY-THREE CASES. Frank L. Campeti, Raymond Gramiak, James S. Watson and George H. Ramsey........... 887

ACUTE MYOCARDIAL INFARCTION REVEALED IN AN ISOLATED PREMATURE VENTRICULAR BEAT. Kermit H. Katz, Morton S. Berk and Chaim I. Mayman 897

SUPRVALVULAR AORTIC STENOSIS. J. J. Denie and A. P. Verheugt........ 902

CARDIAC ARRHYTHMIAS ASSOCIATED WITH THE REPAIR OF ATRIAL AND VENTRICULAR SEPTAL DEFECTS. Rikuro Sasaki, E. O. Theilen, L. E. January and J. L. Ehrenhaft......................... 909

TRAUMATIC RUPTURE OF INTERVENTRICULAR SEPTUM PROVED BY CARDIAC CATHETERIZATION. Scott R. Inkley and Frank M. Barry.................. 916

CARDIAC RUPTURE DUE TO METASTASES FROM A CARCINOMA OF THE ANTRUM. Donald H. Singer, Bernard Czernobilsky and Lester A. Steinberg........ 918

CLINICAL CONFERENCE
SYNDROME OF CABOTID ARTERY INSUFFICIENCY: EARLY RECOGNITION AND THERAPY. Lamar E. Crevasse, R. Bruce Logue and J. Willis Hurst .... 924

CLINICAL PROGRESS
THE SURVIVAL OF EXCITABILITY, ENERGY PRODUCTION, AND ENERGY UTILIZATION OF THE HEART. Milton Kardesch, Charles E. Hogancamp and Richard J. Bing.......................... 935

SECOND SYMPOSIUM ON CARDIOVASCULAR SOUND. Victor A. McKusick, Guest Editor

ENDOCARDIAL AND INTIMAL LESIONS (JET IMPACT) AS POSSIBLE SITES OF ORIGIN OF MURMURS. Jesse E. Edwards and Howard B. Burchell.... 946

THE HEMODYNAMIC EFFECTS OF QUANTITATIVELY VARIED MITRAL AND AORTIC REGRUTINATION. Stanley J. Sarnoff.............................. 960

RADIOLOGIC TECHNIC FOR QUALITATIVE AND QUANTITATIVE STUDY OF BLOOD FLOW. Charles T. Dotter and Louis H. Frische................................. 961

ORIGIN OF HEART SOUNDS AS ELUCIDATED BY ANALYSIS OF THE SEQUENCE OF CARDIODYNAMIC EVENTS. Eugene Braunwald and Andrew G. Morrow ....................................................... 971


PQ INTERVAL, PRESSURE DIFFERENCE ACROSS THE MITRAL VALVE AND AMPLITUDE OF THE FIRST SOUND IN DOGS WITH ATRIOVENTRICULAR BLOCK. Helmut Siecke and Hiram E. Essex........................................... 974
CONTENTS OF VOLUME XVIII

Genesis of Pistol-Shot and Korotkoff Sounds. Ramon L. Lange and Hans H. Hecht .................................................. 975

Correlation of Heart Sounds and Murmurs with Pressure During Left Heart Catheterization. Alvin J. Gordon, Leonard Steinfield, Maurice Dunst and Paul A. Kirschner .................................................. 979

Intracardiac Phonocardiography: Correlation of Mechanical, Acoustic and Electrical Events of the Cardiac Cycle. Howard L. Moscovitz, Ephraim Donoso, Ira J. Gelb and Walter Welkowitz ........................................ 983

Intracardiac Phonocardiography in Mitral and Aortic Valve Lesions. Aldo A. Luisada and C. K. Liu ........................................ 989


The Pulmonary Valve in Direct Phonocardiography. William M. Rogers, Erwin Simandl, Shivaji B. Bhonslay and Ralph A. Deterling, Jr. .................................................. 992

Correlation of Heart Sounds with Ejection Dynamics of the Right Ventricle. A. Calhoun Witham .................................................. 997

Mechanisms of Fixed Splitting of the Second Heart Sound. Joseph K. Perloff and W. Proctor Harvey .................................................. 998

Physiologic Splitting of the Second Heart Sound. Samuel H. Boyer and Arthur W. Chisholm .................................................. 1010

The Tricuspid Component of the First Heart Sound in Mitral Stenosis. Herbert N. Hultgren and Thomas F. Leo .................................................. 1012

Clinical Aspects of Gallop Rhythm with Particular Reference to Diastolic Gallops. W. Proctor Harvey and John Stapleton .................................................. 1017

The Austin Flint Murmur: Its Differentiation from the Murmur of Rheumatic Mitral Stenosis. Jack P. Segal, W. Proctor Harvey and Michael A. Corrado .................................................. 1025

Auscultatory Findings in Pericardial Effusion and in Ventricular Aneurysm. W. Proctor Harvey and John P. Mandanis .................................................. 1034


The "Normal" Systolic Murmur. Dale Groom .................................................. 1044

Abstracts .................................................................................. 1045

American Heart Association .................................................. 1073

Contributors to This Issue .................................................. 1076

Editorial

Explanation in Cardiologic Practice. A. Carlton Ernstene .............. 1081

Relationship of Amount of Cigarette Smoking to Coronary Heart Disease Mortality Rates in Men. Robert W. Buechley, Robert M. Drake and Lester Breslow .................................................. 1085

Congenital Aortic Stenosis: Clinical and Hemodynamic Findings, Surgical Technic, and Results of Operation. Andrew G. Morrow, Edward H. Sharp and Eugene Braunwald .................................................. 1091

Use of Biplane Cinefluorography for Measurement of Ventricular Volume. Carleton B. Chapman, Orland Baker, Jack Reynolds and Frederick J. Bonte .................................................. 1105
CONTENTS OF VOLUME XVIII

Radioactive Fat Absorption Patterns: Their Significance in Coronary Artery Atherosclerosis. William Likoff, Donald Berkowitz, Asher Woldow, A. Gerson Jacobs and David M. Sklaroff.................. 1118

Studies of the Arterial Pulse Wave. Arthur W. Feinberg and Henry Lax 1125

Observations on Aberrant Renal Arteries Curving Around and Compressing the Renal Vein: Possible Relationship to Orthostatic Proteinuria and to Orthostatic Hypertension. Hilel Nathan...... 1131

Pulse Characteristics of Abdominal Aortic Aneurysm and of the Femoral Artery Distal to It. Embree H. Blackard.................. 1135


The Determination of Cardiac Output by the Dilution Method without Arterial Sampling. II. Validation of Precordial Recording. Walter H. Pritchard, William J. MacIntyre and Thomas W. Moir...... 1147


Relation between Structural Changes in the Small Pulmonary Arteries and the Immediate Reversibility of Pulmonary Hypertension Following Closure of Ventricular and Atrial Septal Defects. Donald Heath, H. Frederic Helmholz, Jr., Howard B. Burchell, James W. DuShane, John W. Kirklin and Jesse E. Edwards.................. 1167

The P Wave, P-R Interval, and Q-T Ratio of the Normal Orthogonal Electrocardiogram. Hubert V. Pipberger and Herbert L. Tanenbaum 1175

Panel Discussion

Present Status of Lipid Metabolism and Atherosclerosis. Herbert Pollack, Robert E. Olson, Oglesby Paul and Herman E. Hilleboe...... 1181

Clinical Progress

Theory and Practice in Acute Venous Thrombosis: A Reappraisal. Stanford Wessler and Daniel Deykin.................. 1190

Abstracts .......................................................... 1215

American Heart Association ........................................ 1237

Contributors to This Issue........................................ 1239