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**PROGRESS
IN CARDIOLOGY**

PAUL N. YU

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Edited by

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This volume is dedicated to our wives,
Iling and Barbara, for their understanding,
encouragement and support throughout the
years.

PREFACE

The third volume of *Progress in Cardiology* follows the pattern laid down for the first two volumes. It consists of 12 chapters contributed by authors from four continents. The material covers a wide spectrum of timely topics in cardiology.

The volume begins with a comprehensive review of the epidemiology and prevention of coronary artery disease. Risk factors and their prevention are succinctly discussed and critically evaluated. The second chapter is an excellent description of the formation and conduction of the cardiac electrical impulse, an understanding of which is fundamental to the interpretation and management of the cardiac arrhythmias. This is followed by a richly illustrated chapter on the pathogenesis and mechanism of ventricular arrhythmias, in which a unified concept for the genesis of ventricular arrhythmias is proposed. The next chapter provides us with up-to-date information concerning the physiology of exercise, the criteria for interpretation of exercise tests, and the precautions to be

observed during testing. The fifth chapter describes the care of patients in the important first hour after the onset of acute myocardial infarction. This chapter summarizes the author's experience in the operation of mobile coronary care units in Belfast, which serves as a model for prehospital care of acute myocardial infarction. The results are impressive and suggest a significant role for mobile units in the early prevention and management of cardiac arrhythmias and reduction in the incidence of cardiogenic shock and overall mortality.

The chapter on the renin-angiotensin system emphasizes the important role of this system in hypertension, with respect to pathophysiological, diagnostic and therapeutic considerations. Further investigation in this field will undoubtedly enhance our understanding and management of hypertension and related conditions. The chapter on the Eisenmenger syndrome describes the authors' experience with a large number of patients with this condition. The patho-

physiology and differential diagnosis of the syndrome are authoritatively discussed. The evaluation of drugs which affect heart muscle, with special reference to the principles and methodology for drug evaluation, comprises the eighth chapter. In Chapter 9, long-term surgical results and the advantages and disadvantages of various types of prosthetic valves are thoroughly appraised. Follow-up study has now clearly established the value of valve replacement in improving both longevity and the quality of patients' lives.

Chapter 10 is a critical review of the long-term use of specific agents for prevention of thromboembolic disease. It is now possible to use therapeutic agents judiciously for management of this condition over a period of many years. The principles, diagnostic value and limitations of echocardiography are admirably reviewed in the following chapter. Clinical evaluation of many types of con-

genital and acquired heart disease has been greatly facilitated by this noninvasive diagnostic tool. In the last chapter, the measurement of lung water is discussed. The author reviews the merits and limitations of the technique now widely used in clinical investigation and reports the quantity of lung water in various types of cardiac and pulmonary diseases. The quantitative relationships of lung water to patients' clinical status and to hemodynamic findings are of special interest.

All chapters for Volume 4 have already been committed. We sincerely hope that *Progress in Cardiology* will continue to publish a variety of valuable reviews in the field of cardiology, contributed by investigators from many parts of the world.

Rochester, New York
London, England

PAUL N. YU
JOHN F. GOODWIN

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Chapter 1

PROGRESS IN THE EPIDEMIOLOGY AND PREVENTION OF CORONARY HEART DISEASE*

Henry Blackburn, M.D.

The classical “up-the-river-from-New-Orleans” version of the history of American jazz is a logical and accurate one, as far as it goes, but it misses much of the emotional turmoil, the side battles, and the excitement of the whole development. Similarly, this view of the recent progress in cardiological thought about the epidemiology and prevention of coronary heart disease (CHD) is concerned not with a classical review of the evidence but rather with the present intellectual excitement, questions, and controversies. It is a problem-oriented and personal approach rather than a traditional one. Excellent and thoroughgoing recent reviews of the epidemiological evidence and the status of CHD prevention are available and highly recommended.^{17,18,64,68,69,73}

The present state of progress in cardiovascular epidemiology includes the overriding

demonstration that there are vast differences in the frequency of CHD among populations and that the risk of the disease varies enormously according to the burden of individual or population risk characteristics. Cardiology, in concert with disciplines from preventive medicine, has arrived at the stage of knowledge in which major preventive trials are considered indicated and imperative.⁷⁵ These will demonstrate whether individuals and populations at apparently high risk can be converted to lower levels of risk by direct intervention on the risk factors, that is, by prophylactic treatment. These ideas, simple like most important ideas, confront the medical profession and the public with one of their finest challenges. It is now a part of the mainstream of cardiology to participate in this adventure, to test whether significant reduction is possible of one of the most costly of man's diseases.

THE PROBLEM

The essentiality of a preventive approach to CHD is clear from what we know of the insidious nature of the atherosclerotic process,

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