# OBSERVATIONS ON THE PHYSIOLOGY OF CORONARY CIRCULATION*

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Formerly it was believed that the coronary arteries were end arteries in the true sense. Within relatively recent years, however, and largely as the result of the investigations of Dr. Wearn, this conception has been discarded. Dr. Wearn and his associates have demonstrated that blood entering the coronary arteries has several possible exits. In the first place, of course, it may pass by way of the capillaries and veins into the coronary sinus and then into the right auricle of the heart. Through the capillaries, also, blood may pass into the thebesian veins which communicate directly with the heart chambers. In addition there are vessels of an order larger than capillaries, which pass from the coronary arteries to the lumen of the ventricle or from the coronary arteries to sinusoids situated between the muscle bundles. Lastly, there are rather extensive anastomosing vessels, which arise from the coronary arteries and extend into the pericardium, mediastinum and diaphragm. The extent to which the various pathways, other than those communicating with the coronary sinus, participate in the nourishment of the normal heart is still a matter for conjecture. There is clinical evidence, however, that in the presence of gradual narrowing and occlusion of a coronary artery, an efficient collateral circulation may develop by way of the thebesian veins and the vessels described by Wearn.

Numerous technical difficulties are encountered in attempts to measure the flow of coronary blood. Because of the numerous channels by which blood may escape from the coronary arteries and capillaries, it is essential that the amount of blood, which enters the coronary arteries be measured, rather than the amount of blood which returns through the coronary sinus. Opinion has been divided as to whether there is a forward flow of blood through the coronary system only during diastole or whether flow also occurs during systole. Although the final answer to this problem is not yet available, most recent evidence indicates that there is a period of forward flow during systole as well as during diastole.

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