**ARThUR MASTER, CARDIOLOGIST, 77**

**Developer of the 'Two-Step' Heart Diagnostic Test Dies**

Dr. Arthur M. Master, who developed the “Master Two-Step” exercise tolerance test for the diagnosis of heart disease, died yesterday of cancer at Mount Sinai Hospital. He was 77 years old and lived at 885 Park Avenue. Until a few weeks ago, Dr. Master had maintained an active practice in cardiology at his office, 125 East 72d Street.

The “Two-Step”, which Dr. Master developed in the nineteen-fifties, consists of two 9-inch steps that a patient must climb up and down for a prescribed length of time depending on weight and age. After a measured amount of exercise

an electrocardiogram reveals the presence of heart disease that is often undetectable when the electrocardiogram is administered to a patient at rest.

**Useful Diagnostic Tool**

The device, with the exercise standards Dr. Master developed, is still considered a highly useful diagnostic tool, despite the more sophisticated tests that have come into use during the last 30 years.

Although Dr. Master was primarily a practicing physician, as a researcher, he published more than 400 articles and five books on heart disease, its causes and detection.

He was one of the first cardiologists to write that victims of certain types of heart attacks could make a complete recovery without being bedridden for the rest of their lives. He also did early research on the connection between overweight and heart disease and between exercise and heart disease.

One of his studies, in 1940, showed that more than half of a sampling of 1,620 heart attacks occurred during sleep or rest, disputing the widely held theory that most heart attacks were brought on by heavy exertion.

**Book in Progress**

At his death, Dr. Master was working on a revision of “Cardiac Emergencies and Heart Failure,” a book he first published in 1952, with Dr. Marvin Moser and Dr. Harry L. Jaffee as co-authors. A review of Dr. Master’s work, “Cardiology in the Twentieth Century: Contributions of Arthur M. Master, M.D.” was recently published by the American College of Chest Physicians.

Dr. Master, who was born here, graduated from City College in 1916 and from the Cornell University Medical College in 1921.

He interned at Mount Sinai Hospital and was associated with the hospital for the rest of his life, later as chief of cardiology and, since 1957, as consulting cardiologist. He received a medal as an “alumnus of the year” from the hospital in 1952. In 1968 he was appointed emeritus professor of medicine at the newly founded Mount Sinai School of Medicine.

**Led Medical Society**

Dr. Master also had teaching appointments at Cornell Medical School and the College of Physicians and Surgeons of Columbia University. He was president of the New York County Medical Society in 1951-52.

He served in the Navy during both world wars. During World War II he was chief of medicine of a Navy mobile hospital in the Solomon Islands.

Dr. Master was known among his colleagues as a hardworking doctor despite serious emphysema which forced him for the last 10 years to carry a portable oxygen supply with him.

Dr. Master’s wife, the former Hilda Altschul, died in 1967. She was sister of Mrs. Herbert H. Lehman, widow of the governor and senator. Dr. Master leaves a son, Arthur, and two daughters, Edith Master and Mrs. Camilla Rosenfeld; a brother, Phillip; three sisters, Sara Master, Mrs. Ida Gross and Mrs. Dorothy Wittner; and four grandchildren.

A funeral service will be held at 10 A.M. tomorrow at Temple Emanu-El, Fifth Avenue and 65th Street.