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CHRONICLE

A. Martin, One of the Fathers of Modern Chromatography

A Nobel Prize winner and an English biochemist, Archer John Porter Martin passed away on July 28, 2002, when he was 92 years old.

Martin was awarded with the 1952 Nobel Prize together with Richard Synge for the invention of partition chromatography. Martin was skilled in countercurrent extraction. Working together with Synge, he applied this method to column chromatography for the separation of mixtures of amino acids. Water on silica gel was the stationary phase; chloroform was the mobile phase.

When several years later the authors of the method were awarded the Nobel Prize, the Swedish scientist and Nobel Prize winner Professor Tiselius said, "Your invention of partition chromatography has given science a new tool, which already has proved its usefulness in an impressive number of important investigations. This tool has enabled research workers in chemistry, biology and medicine to tackle and solve problems that were earlier considered almost hopelessly complicated."

In their research, Martin and Synge discovered that, apart from silica, cellulose also retained water. This discovery led to the development of paper chromatography in 1944. Filter paper was used as a carrier of the stationary phase. This technique quickly received wide acceptance. It was widely used until it was replaced with thin-layer chromatography (as is known, the first research in thin-layer chromatography was carried out by N.A. Izmailov and M.S. Shraiber in Kharkov as early as in 1938).

The invention of gas–liquid chromatography (in 1952) in collaboration with A.T. James was a more important success of Martin. In this case, an inert gas (for example, argon or helium) served as the mobile phase, while an inert carrier modified with a non-volatile liquid on its surface (high-molecular alcohols and others) was used as the stationary phase. The method of gas-liquid partition chromatography has received the widest acceptance in the world.

Martin graduated from the University of Cambridge. In 1936, he received his PhD. From 1938 to 1946, he worked as a biochemist at the Wool Industries Research Association (Leeds). His work dealt with wool proteins. In 1946, he headed the Biochemistry Division of the Research Department of Boots Pure Drug Company at Nottingham, and in 1948 he joined the staff of the Medical Research Council at the Lister Institute in London. Later, he worked as a biochemist and was Head of the Division of Physical Chemistry at the National Institute for Medical Research again in London. In 1954–1970, Martin was a Director of Abbotsbury Laboratories, Ltd. Later, he was a consultant at the Welcome Foundation for three years and a professor at the University of Sussex. For five years (1974–1979), he was a lecturer at the University of Houston (USA). From 1950 until his death, he was a Fellow of the Royal Society.

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