

Hauser, Charles Roy ^[1]

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by Maurice M. Bursey and Charles K. Bradsher, 1988

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Charles Roy Hauser, chemist and educator, was born in San Jose, Calif., the son of Charles H. and Elizabeth Rogan Hauser, but moved to Florida at an early age. He attended the University of Florida, where he received a B.S. in chemical engineering in 1923 and an M.S. in 1925. His Ph.D., on organic chloramines, was obtained at the University of Iowa in 1928 under the direction of George H. Coleman. After a year as instructor in organic chemistry at Lehigh University, he joined the faculty of [Duke University](#) ^[2] as an instructor in 1929. There he became a professor in 1946 and James B. Duke Professor in 1961.

For almost ten years after he received his doctoral degree, Hauser's work was neither prolific nor especially notable. He reportedly told a colleague that it took him a long time to learn how to do research. The first of his important discoveries came in 1937 and 1938, in association with W. B. Renfrow, Jr., and David S. Breslow. It concerned his studies on the Claisen condensation and the Perkin synthesis, reactions that produce new carbon-carbon bonds with the aid of basic catalysts. These papers laid the groundwork for understanding the role of acid-base relationships in condensation reactions, and also prefigured a theme of his later research: the improvement of yields and the development of new applications of organic synthesis through understanding of the fundamental mechanism of the chemical reaction. In the second paper of the series in 1938, he enunciated what was to become known as "Hauser's rule": in condensations of esters, the base formed is weaker than the base that initiates the reaction. The prime example of this fundamental reaction was the development of the base-catalyzed rearrangement of benzyl quaternary salts, now called the Sommelet-Hauser rearrangement (despite the relatively minor contribution of Sommelet); Hauser elaborated the theoretical implications of the reaction in collaboration with Simon W. Kantor and Donald N. van Eenam.

His most significant discoveries resulted from his studies of organic polyanions, or organic species with several negative charges, beginning in 1962 in a collaboration with Thomas M. Harris. New carbon-carbon bonds formed by the reaction of these polyanions with suitable alkylating agents are often at different positions in the molecule than the carbon-carbon bonds formed by the reaction of simple singly charged organic anions. Their use makes possible the easy synthesis of compounds that would be quite difficult to prepare by other means.

For his major discoveries on the fundamental mechanisms and synthetic applications of these base-catalyzed condensations, Hauser was elected to the National Academy of Sciences in 1958; he was the first chemist from a university in the Southeast to be so honored. During [World War II](#) ^[3] he had been awarded a certificate of merit for his work on the synthesis of anti-malarial compounds. For his principal studies he received the Florida Section Award of the American Chemical Society as "the outstanding chemist of the South" (1957), the Herty Medal (1962), the American Chemical Society Award for Creative Work in Synthetic Organic Chemistry (1962), and the medal of the Synthetic Organic Chemical Manufacturers Association (1967).

Research in organic chemistry was both vocation and avocation to Hauser, and he communicated his enthusiasm to all with whom he worked. His research conferences continued during his final long confinement in the hospital, the last occurring only a few hours before his death. More than seventy chemists earned their doctorates under his direction, and he published more than four hundred research papers in organic chemistry.

In 1929 Hauser married Madge L. Baltimore. Their children were Elizabeth (Mrs. R. L. Grate) of Pacific Grove, Calif.; Frances (Mrs. J. E. Yourison) of Toledo, Ohio; and [Dr. Charles F. Hauser](#) ^[4] of Charleston, W.Va., who, like his father, was an organic chemist.

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Additional Resources:

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