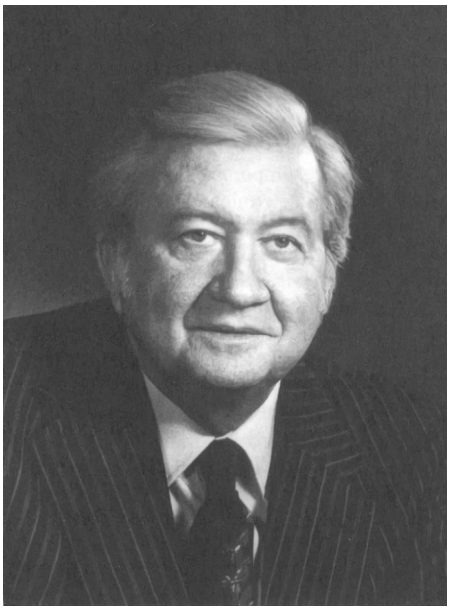

John Clark Sheenan

September 23, 1915 - March 21, 1992

John C. Sheehan will long be remembered for having solved one of the most formidable and prominent problems in synthetic chemistry of the twentieth century, the chemical synthesis of the penicillins, and for helping to lead organic chemistry to new heights in the post World War II era. He made major contributions to his academic home for four decades, the Massachusetts Institute of Technology, through his teaching and research, which were instrumental in rejuvenating chemistry and maintaining its excellence at the Institute, and through the enormous financial returns from his successful work on synthetic penicillins. His fundamental research provided the chemical base for the development of modem semisynthetic penicillins that have saved countless human lives. John Sheehan played an active role in the *Organic Syntheses* organization, having served as Editor-in-Chief of Volume 38, as a XXV member of the Advisory Board and Board of Directors for many years, and as an astute advisor. His was a multifaceted career shaped by his famed mentor the late Werner E. Bachmann, secret research projects during World War II on the production of explosives and antibiotics, the postwar rebuilding of Chemistry at M.I.T. under the late Arthur C. Cope, service on governmental scientific advisory committees, and leadership of private research institutes in the Boston area. His achievements demonstrated an ability to focus on chemical problems of great practical importance, the courage to pioneer against strong odds, and an unflagging determination to succeed.

John Sheehan was born and raised in Battle Creek, Michigan and was educated at local schools and at Battle Creek College. He received the Ph.D. degree in 1941 from the University of Michigan for studies in the laboratory of Werner E. Bachmann, then engaged in the historic first total syntheses of the steroid hormones equilenin and estone. John was a superbly trained experimentalist in the grand tradition of Bachmann and Bachmann's illustrious teacher Moses Gomberg, the founder of the field of carbon free radicals. John assumed a postdoctoral position in the Bachmann laboratory with the entry of the U.S. into World War II, and, in collaboration with Bachmann, developed the large-scale method for the production of the important explosive RDX which was used by the U.S. for the remainder of the War with great success. From 1941-1946 he was a

research chemist at Merck and Co. under the late Max Tishler and participated in several key projects including the program of research on penicillins.

At the invitation of Arthur C. Cope, John joined the Faculty of M.I.T. as an Assistant Professor in 1946. Cope had just been appointed as Head of the Department of Chemistry by the President of M.I.T., Karl T. Compton, on the advice of his friend and wartime associate Roger Adams of the University of Illinois. At the same time John D. Roberts and C. Gardner Swain were brought on board by Cope, and in the next few years that foursome and their colleagues propelled M.I.T. into the front rank of U. S. chemistry. Within a period of just four years John Sheehan established himself as one of the most creative and dynamic synthetic organic chemists in the world by his discovery of new methods of synthesis of peptides (carbodiimide coupling and phthaloyl N-protection), three new syntheses of (3-lactams, the first synthesis of the penicillin ring system, and the isolation and identification of a number of important new natural products.

His research on penicillins, initiated in 1948, was remarkable for several reasons. It came on the heels of the large wartime U.S.-British project of research on penicillins (involving more than one thousand chemists), which failed to develop a chemical synthesis and produced instead an ominous summary of a great many attempts. By 1948 penicillin G was produced in abundance commercially by fermentation and no other leading chemist saw any reason to take on the apparently hopeless task of synthesizing such an unstable molecule. In John's own colorful language the chemical synthesis of penicillin was like "placing an anvil on top of a house of cards. " Years of determined and skillful effort were rewarded by success in 1957 when John and his group completed the first synthesis of penicillin V and also 6-aminopenicillanic acid, a key intermediate for the synthesis of a large number of superpenicillins. John later told the story of his work on penicillins in the book *The Enchanted Ring-The Untold Story of Penicillin,* which includes an account of the complex legal skirmish over the Sheehan-M.I.T patents on penicillin synthesis.

John Sheehan's major research achievements are described in some 150 papers which cover not only penicillin, but peptides, antibiotics, alkaloids and steroids. For these scientific contributions John received several high honors including the American Chemical Society award in Pure Chemistry (195l), the American Chemical Society award for Creative Work in Synthetic Organic Chemistry (1959), the John Scott Award for inventors benefiting mankind (1964), the Outstanding Achievement Award of the University of Michigan (197I), and a number of honorary doctorates.

As a graduate student in John's research group I was struck by his ingrained cheerfulness, optimism and humor, as well as his broad chemical expertise. That 1948-1950 group, which included Gerald D . Laubach (later President of Pfizer, Inc.), Robert T. O'Neill (later a successful research chemist at Merck and private businessman), Barry M. Bloom (President of Pfizer Research), Ajay K. Bose (Professor at Stevens Institute of Technology), and David Johnson (research director at Bristol Myers), no collection of shrinking violets, found as much enjoyment in give and take with John as in the research adventure itself.

John Sheehan was a man who made friends easily and had many close friends,

including not a few in the *Organic Syntheses* family. He was an avid tennis player and boater, a close follower of politics and sports, a lover of good stories, and an entertaining dinner companion. John is survived by his lovely and devoted wife of more than fifty years, the former Marion M. Jennings; a brother, David Sheehan of Battle Creek, Michigan; three children, John C. Jr. of Denver, Colorado; David E. of Key Biscayne, and Elizabeth (Betsy) S. Watkins of Sauderstown, Rhode Island, and six grandchildren.

E. J. Corey
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