



Charles H. Russell

Portrait and signature furnished by courtesy of Mrs. Jean Randall and Professor Mary K. Bennett.

Charles Hamilton Randall: 1928–1987

Charles Hamilton Randall was born in New York City on February 21, 1928, the elder child and only son of Charles J. and Anna (Hayward) Randall. His forebears had emigrated to the United States from Ireland and Holland several generations earlier, and the family eventually settled in Brooklyn where Charley spent his boyhood. His family was of moderate means; his father managed a gas station in Harlem. He was always proud of his Brooklyn roots, and his distinctive Brooklyn accent stayed with him throughout his life, in spite of (or perhaps because of) his later New England academic career.

Charley was educated in the Brooklyn public schools and was recognized early on as an exceptional student. He won admission to the highly competitive Brooklyn Technical High School, where he graduated in 1945. As did many young men of his age, he immediately enlisted in the Army Air Corps just at the end of World War II. When he was discharged two years later, he took advantage of the GI Bill to begin his college education, and received his bachelor's degree from the Polytechnic Institute of Brooklyn in 1951.

He was active in the ROTC in college, and to the end of his life he was very proud to have been president of the Pershing Rifle Division, and an officer of the *AXA* fraternity. He was recalled to duty as an officer in the Army Corps of Engineers in Korea, and was finally discharged from the Army as a First Lieutenant in 1953. By now he had met Jean Wendt (also from his native Brooklyn), and they were married on September 12, 1953. They eventually became the parents of three children, Barbara, Kenneth, and Paul.

From 1953 to 1956 he worked for the Westinghouse Corporation in Pittsburgh as a thermal engineer in the reactor department and from 1956 to 1958 as a nuclear specialist and project engineer for Advanced Systems, Martin Company, in Baltimore. He helped to design the nuclear reactor for the world's first nuclear submarine, the U.S.S. *Nautilus*, under the late Vice Admiral Hyman Rickover. During his time in Pittsburgh he worked on his master's degree in nuclear engineering, which he obtained in 1957 from the University of Pittsburgh. He moved to the Knolls Atomic Power

Laboratory (part of the General Electric Company) in Schenectady where he worked from 1958 to 1967. In addition to his full-time job and growing family responsibilities, he started work on his doctorate which he obtained from Rensselaer Polytechnic Institute in 1967. His Ph.D. thesis was not his first effort. He had previously written and submitted a thesis, based on Boolean algebra, to his committee at RPI. Although this thesis was accepted, and his doctoral degree was at hand, he began to have misgivings; he had come to believe that lattice theory, and not the more specialized Boolean algebra, was the proper vehicle to express his thoughts. He retrieved the thesis, destroyed it, and started again to write a new thesis from scratch. This selfsame devotion to the principles of scholarly integrity permeated all of his professional activities.

The preface to Charley's Ph.D. thesis begins with the following words:

"This work, as its title indicates, is part of a program aimed at providing a universal mathematical foundation for all empirical sciences. This rather ambitious program, however, was not my original intent. Motivated by problems in nuclear reactor engineering, I simply sought an adequate mathematical formalism to deal with mechanical mixtures of various materials. My approach was to regard such media as stochastic products of some well-defined fabrication process. Stochastic models and methods were developed, after some effort, that did predict the behavior of some of these materials with reasonable accuracy [references]. There were, however, some difficulties. Manufacturers appeared to concentrate their efforts on producing useful materials for which I had no available models. As a result the stochastic models for the materials became more complex and the necessary manipulations became less tractable. I soon concluded that perennial model making, however clever, at best offered only a temporary and partial solution."

Charley never forgot the lessons learned while working in what he referred to as the "nuclear business," and his disenchantment with "perennial model making" influenced all of his subsequent scientific work. His great dream was to create a modern "*characteristica universalis*" in the spirit of Leibniz and a "*calculus ratiocinator*" for its manipulation.

At the time he finished his doctoral work, he was "in danger" of moving up the corporate ladder at G.E., and administration was not for him. ("If I were head of the department, I wouldn't last a week... but oh, what a week!") So he was investigating academic possibilities just at the time one of us (D.J.F.) had received a copy of his thesis. This led to Charley's appointment at the University of Massachusetts, where he spent the last twenty years of his life, and to an extraordinarily close and fruitful collaboration with D. J. Foulis.

All of Charley's enterprises were conducted systematically, with a marvelous attention to detail. When he first arrived at U. Mass. for his job interviews, he brought with him a thick file on the then Dean. ("He has a

file on me; I think it only proper that I have a file on him.”) He had spent a number of hours in the library reading not only the Dean’s biography in *American Men of Science* and *Who’s Who*, but actually perusing the Dean’s scientific publications. He inculcated this same scholarly dedication to meticulous detail in all of his Ph.D. students. Even in the last weeks of his life, Charley insisted on keeping, for himself, a detailed record of the operation of the electronic infusion pump that was providing his medication.

His scholarship extended well beyond the confines of mathematics, science, and technology. He loved and understood classical music, he was a local expert on history—particularly Irish, English, and American history—and he was a careful follower of politics and current events. When asked how he felt about some controversial issue in the news, he would usually begin to respond with “It’s really very simple” And, after his informed and thoughtful analysis, if often was!

Charley Randall was a patriot, and proud of his military service. To tell a person he would have made a good soldier was one of the highest compliments he could bestow. It was ironic that he entered academic life at the height of the “sixties movement,” of which he took a philosophical view. (“This place looks like Rome the day after the Fall... with all the Visigoths sitting around.”)

He was a fervent believer in the Jeffersonian doctrine that an educated and enlightened electorate is the very foundation of our representative form of government. This is why he felt so strongly about the erosive effects on our educational system of sham scholarship, courses without content, and grade inflation. (With his customary creative grammar for emphasis, he once remarked, “I gave — an F because we don’t got no G’s or H’s.”) He thought that the so-called “educators” who were responsible for promulgating these abominations were a far greater menace to the country than any threat from a hostile external power.

In his elementary classes, he liked to appear as a detached and impersonal teacher and set the tone with the first sentence of his first lecture. (“Thus confrontation was arranged by the University’s computer.”) But most students ultimately saw through the thin disguise and came to appreciate him as the caring and compassionate teacher he really was. His office door was always open to students, and he had a unique way of giving encouragement when progress was slow. (“When Michaelangelo finished the Sistine Chapel did anybody say ‘Hey Mike, that’s a nice ceiling; how long did it take you?’”) He was revered by his advanced students, for whom he provided not only precious insight into the process of creating new ideas, but also the inspiration to create new ideas for themselves.

In the winter, Charley enjoyed skiing, and in the summer he loved to sail his boat. True to his Irish heritage, he also liked to relax in the

camaraderie of the local pub, where a plaque now commemorates him as the founder and first president of the Amherst Philosophical Society. Under the auspices of this illustrious organization, there was many a lively discussion, often both instigated and guided by the brilliant wit of its presiding officer. He had a way with words that no one who knew him will ever forget.

Charley deeply loved his family. ("I appreciate the finer things in life, and Jean's one of the finer things in life.") He took his responsibilities as son, brother, husband, and father very seriously; and after his father's death, he referred to himself in the Irish way as "the Randall" (the head of the family). When he learned of the terminal nature of his illness, his first thought was not for himself. Neither was it for his unfinished scientific work. His first concern was for his family.

Early in 1986, Charley noticed a sore in his mouth which was diagnosed as cancer. He had surgery, and his family and friends were hopeful for a while; but it was clear by the summer that he wasn't progressing as well as expected. He was told in early 1987 that he had very little time. He was open about his situation with his close friends ("I'm being amazingly philosophical about this, aren't I?") and enjoyed having visitors until very close to the end. He died in his home, his wife Jean at his side, late at night on March 9, 1987.

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