D. R. Charles, Geneticist and Statistician

Selfless men like Donald Charles rarely leave their record of achievement in a form that may be properly assessed, or even understood, by most of those who survive them. Don Charles' personal writings probably number less than twenty. Even though they include an exemplary summary of statistics for students of genetics and widely known studies of crossing over, the developmental genetics of mice, and the genetic effects of radiation, his scholarship is not to be read from these alone. Nor is it to be judged from the nine manuscripts that remained in his files.

Master of statistics and functional biology, especially of genetics, his help and insight were constantly sought by students and peers alike. Since he was without personal interest in credit or recognition, he freely contributed his very best to all, and most of his original thought and productivity were dissipated usefully, but quite anonymously, through numberless publications of others. He made his mark in the minds and affections of those he helped, and through them he will continue to be heard.

Don Charles graduated from Franklin and Marshall College (1928), studied 2 years at the University of Pittsburgh, and then completed his graduate work in the department of zoology at Columbia University (1930–35). At Columbia he was profoundly influenced, in a manner that colored all his later thoughts and actions, by L. C. Dunn, Selig Hecht, and Donald Lancefield. His doctoral thesis on a causal analysis of spotting patterns in mice was carried out under Dunn's sponsorship. Then Don Charles enjoyed a golden year of study, of which he often spoke, with Sewall Wright at Chicago as a National Research Council fellow (1935–36).

Following an instructorial year at Sarah Lawrence College, Don Charles joined the staff of the department of biology at the University of Rochester (1937), rising to professor and chairman of the department (1948–53). During World War II (1943–46), he was geneticist of the Manhattan Engineering District at the University of Rochester, planning and directing the radiation studies on mice that played so important a role in the estimation of permissible radiation doses. In 1947 he served on the National Committee on Radiation Protection and on the Committee on Applied Mathematical Statistics (National Research Council).

At Rochester, Don Charles taught, at one time or another, general biology, comparative anatomy, statistics, human genetics, general genetics, and a series of graduate seminars that ranged through mathematical genetics, evolution, and immunology. His lectures and beautifully conceived laboratory exercises were notable for their originality, insight, and constructive synthesis, no less than for their success as educational experiments. Although his demands on the imagination, work habits, and participation of the students at all levels were exceptional and his grading was vigorous, the students caught his enthusiasm, and many first discovered the inner rewards of scholarship and understanding in these courses. To all students he was an outgoing, good-humored friend, and his very personal relationships with them went far beyond his academic duties. He fulfilled their needs wherever he could, giving freely his instruction, counsel, friendship, books, and —to the needy—his money. Quite characteristically, when in war service, as a geneticist, he firmly but quietly refused any increase in salary on the grounds that the combat soldier was not similarly privileged. To the regret of his friends, the encompassing altruism he practiced was one way only; he offered little opportunity for any to give back, and he asked nothing on his own behalf.

When he learned, in 1950, that his physical distress was caused by Hodgkin's lymphoma, he began a methodic retrenchment within himself, although he continued to fulfill his academic and scientific obligations to the utmost. Systematically, and at an ever increasing rate, Don Charles narrowed his wide circle of friends as the disease advanced. In the summer of 1954 he resigned from the university, even though most extraordinary steps were taken to retain him. Thereafter, he acted as a mathematical consultant to the Haloid Corporation, an organization for which he had earlier done a good deal of mathematical work.

By the fall of 1955, Don Charles was a companion to few. Early in November he evidently sensed the onset of the terminal stages of the lymphoma and quietly disappeared from his job and from Rochester. Having paid a final visit to his birthplace, Bethlehem, Pennsylvania, he died alone, in New York City, on Thanksgiving morning, at the age of 46. His body was brought to Rochester and it was interred by the Haloid Corporation and the University of Rochester, the two institutions to which Don Charles had devoted the most productive years of his professional life.

Don Charles probably never admitted to himself, or even recognized, the affection and devotion in which he was held by people in all walks of life nor the magnitude of his scholarly accomplishments. As with very many others, I am proud to have been among his "students" and to have had his thought reflected in my work; we are all better scientists because of him.

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The guarantee of science is in the verification of experience, direct or indirect. It distrusts the validity of a priori conclusions, or of any explanation drawn solely from general ideas of Nature's order, unless those general ideas have themselves been rigorously demonstrated to be necessities of thought, or to represent the observed order. What must be, or may be, has to give place to what is. The general doctrines of Science are never, like those of Theology and Metaphysics, conceived to be final.—George Henry Lewes, Aristotle: a Chapter from the History of Science (*Smith, Elder and Co., London, 1864*).