

Raymond Bernard Cattell (1905–1998)

Raymond Cattell's career in psychology was summarized aptly in the lead article of the August 1997 awards issue of the *American Psychologist*, just six months before he died at his home in Honolulu, Hawaii, on February 2, 1998. The article accompanied an announcement that he had been selected to receive the American Psychological Foundation (APF) Gold Medal Award for Life Achievements in Psychological Science. It was noted that Cattell had introduced many methodological innovations; made prodigious contributions to describing abilities, motivation, and temperament; and developed a highly influential theory of personality in which environmental and hereditary influences operated over the life span of development. The article nicely outlined the basis for recognizing Cattell as a major contributor to the development of a science of psychology.

Cattell, the second of three sons of Mary Field and Alfred Ernest Cattell, was born in Hilltop, a village on the outskirts of Birmingham, England, on March 20, 1905, but in his recollections of his childhood, he talked mainly of living in Torquay, a resort town near the sea in the south of England, where his parents moved the family when he was six years old. He won scholarships, first to Torquay Grammar School and then to the University of London. The first member of his family and the only one of his brothers to gain a university education, he earned a bachelor of science degree with first-class honors in chemistry from Kings College, London, in 1924.

In a 1974 memoir, he said that, at the time of his graduation, he was a socialist in the mold of Shaw and Wells and that, in 1926, he turned from chemistry to psychology after hearing a lecture by Cyril Burt that inspired him with the view that a science of psychology offered hope for solutions to our social problems. He left the shining flasks of his chemistry bench and went to work in Charles Spearman's psychology laboratory at University College, where he also studied with Cyril Burt and R. A. Fisher. In 1929, he was awarded the doctor of philosophy degree in psychology. Also at the University of London, he earned a master's degree in education in 1932. Later, in 1939, the University of London gave him an honorary doctor of science degree. During this period, from 1926 to 1932, he was a lecturer in psychology at the University of Exeter, near Torquay. From 1932 to 1937, he was director of the City of Leicester Child Guidance Clinic and an advisory psychologist at Dartington Hall, a free-choice experimental school in Devonshire.

Cattell was very attached to Devonshire and his home near the sea. This is beautifully expressed in his 1937 book, *Under Sail Through Red Devon*, in which he described his sailing adventures and love of the countryside around the south coast of England.

Cattell's drive and his early hopes for the discipline of

psychology can be seen in his 1933 book, *Psychology and Social Progress*, in which he argued that solutions to social, economic, and moral problems lie in developing a rigorous, objective science of psychology. These views were expressed again in a 1937 book, *Human Affairs*, edited with Cohen and Travers, the main thesis of which was that the findings and methods of science should be applied to solve moral, social, and political problems. These books were much discussed—much praised and much criticized—as was his 1937 book, *The Fight for Our National Intelligence*. Here Cattell reported on a study—based on a large, nearly complete sampling of the school children of an industrial city and its surrounding rural area—in which he found that parents of lower ability had more children than parents of higher ability. Cattell interpreted this finding as projecting a lowering of the national intelligence. To prevent this, he argued, societal incentives should be invoked to encourage those of higher ability to have more children and those of lower ability to have fewer children. Published at a time when Adolph Hitler was proclaiming that an "Aryan super-race" should rule the world, his book was particularly controversial. Years later, when Cattell was put forward for the APF life achievements award, his eugenics arguments were condemned by some.

The kinds of writings mentioned above were hardly discernible among the avalanche of some 43 books and more than 500 articles that Cattell published over the next 60-odd years. He came to the United States in 1937 to become a research associate with E. L. Thorndike at Columbia University. He gained citizenship in his first year of residence. From 1938 to 1941, he was G. Stanley Hall Professor of Genetic Psychology at Clark University, and from 1941 to 1944, he was a lecturer and Fellow in Psychology at Harvard University. From 1944 to 1945, he served as a civilian consultant to the Adjutant General's Office, Personnel Research Division. In 1946, he was appointed Distinguished Research Professor of Psychology at the University of Illinois at Urbana-Champaign. There he founded and directed the Laboratory of Personality Assessment. He remained in that position for 27 years.

Between 1940 and 1950, Cattell published 41 articles reporting empirical studies in which he used the then novel methods of factor analysis to develop a system for describing human individual differences measured through self-reports, ratings of others, and objective test performances. In books published in 1946, 1949, and 1950, he wove the results of those studies into descriptions and explanations—his theory of personality. His premier theoretical contribution was *Personality, A Systematic, Theoretical, and Factual Study*, published in 1950, a masterful integration of findings from his comprehensive, methodologically sophis-

ticated program of research. Measurement and research design innovations and his theory of personality were developed further in *Personality and Motivation Structure and Measurement* in 1957, *Personality Factors in Objective Test Devices* in 1965, and four other books published in the time between these two publications.

The findings of Cattell's research, the new methods developed, and his ideas about measurement and research design (e.g., the "data-cube" concept) have had massive influence on the field of psychology. His writings on factor analysis and multivariate analysis have notably helped shape the methodology of structural equation modeling. His theory of personality, rivaled by no other in its comprehensiveness and adherence to evidence derived from empirical research, has been a benchmark by which to assess other personality theories. His contributions to behavior genetics have been influential. His statement of a theory of fluid and crystallized intelligence has been a major guide in research on the development of human abilities. His work on test development, a by-product of much of his research and indicative of his belief that the science of psychology should be applied to help deal with human problems, has also had important impact. With Frank Warburton, he published a compendium of several hundred objective tests. With the Institute for Personality and Ability Testing, he published dozens of questionnaires and ability tests. These devices are widely used in research and assessment situations. The best known of the tests, the 16 Personality Factor Questionnaire, first published in 1949, has been translated into 40 different languages. It has been a basis for the development of many other self-report measures of personality.

Cattell generated a large amount of collaborative work. Almost shy in face-to-face interactions, he very much enjoyed humor, poetry, drama, and music. In his interpersonal relations, no less than in his scientific theory, he liked individual differences. He was hugely imaginative and creative, intellectually tenacious, and willing to work long hours. He inspired students and younger colleagues; he attracted many coworkers. At least 295 of his approximately 575 publications were written with coauthors. He brought together many outstanding researchers in edited books, the most notable probably being the widely used *Handbook of Multivariate Experimental Psychology*, published first in 1966 and then as an entirely new edition edited with John Nesselroade in 1984. He instituted the founding of the Society of Multivariate Experimental Psychologists and the establishment of the journal of that society, *Multivariate Behavioral Research*.

Cattell's writings on "Beyondism: Religion From Science" (1982, 1987) are particularly revealing of his drive and character. In these works, as in his books of the 1930s, Cattell argued that morality should be based on science. Beyondism symbolized the idea that humans cannot know what will be required for continuance of their species in the future. Therefore, they should strive to live in accordance with evolutionary principles that maximize the chances of survival of a species. They should encourage great variety—individual differences—among themselves, so that en-

vironmental stresses that might wipe out a homogeneous group would eliminate only some individuals, not all. To this Darwinian principle of survival of individuals, Cattell added the idea of survival of societies: Survival will accrue to societies that can adapt under changing conditions. There should be great variety in societies. Diverse groups should be left alone to pursue their own programs for building the "best" society. No group should dictate to any other, but with that proviso, no group need aid the survival of any other group.

These ideas were condemned by some, approved by others. Largely, they illustrate Cattell's drive to improve the human condition and his belief that this must derive from evidence-based reasoning. He devoted his life to building a basis for such reasoning—a science of psychology—and to putting forth ideas about using this basis. Although these efforts brought him much criticism, he pressed on. His courage in holding to independent thinking and the prodigious creativity of that thinking are hallmarks of his character and contributions to psychology.

The effects on a discipline of a particular person's work are difficult to document, but it seems clear that Cattell's writings on theory and method, his findings from empirical research, his founding of movements, and his personal influence on others have contributed immensely to the breadth and depth of modern scientific psychology. The seven past-presidents of the American Psychological Association who selected him, despite his controversial writings, for a lifetime contributions award were correct in their judgment. He must rank among the most important contributors to psychological science.

University of Illinois policy forced Cattell's retirement in 1973. He had loved the seaside in Devonshire and had never cared much for the climate in Illinois; he looked elsewhere for a place to live after retirement. He liked the mountains of Colorado. There he supervised construction of a house shaped like a sailboat that "hove to," as it were, from a mountainside overlooking Denver. Health concerns forced him to leave that high altitude. He found much that he had loved about Devonshire in Hawaii, including year-round sailing; he moved there in 1978. He continued to attract students and coworkers, first at the University of Hawaii and later at the Forrest Institute of Psychology.

Cattell was married in 1930 to Monica Hazel Campbell, an artist. They had one child, Hereward Seagrieve, born in London in 1932, and were divorced in 1938. From 1946 to 1980, he was married to Alberta Karen Schuettler, a mathematician with whom he published several articles and tests. They had four children: Mary Diana Lynagail, Heather Eugenia Priscilla, Roderick Geoffrey Galton, and Elaine Devon. In Hawaii, Cattell married a third time—to Heather Birkett, a clinical psychologist.

Cattell is survived by his wife, Heather; his sons, Hereward and Roderick; his daughters, Mary, Heather, and Devon; and seven grandchildren.

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