Richard C. Atkinson: President-Elect of AAAS

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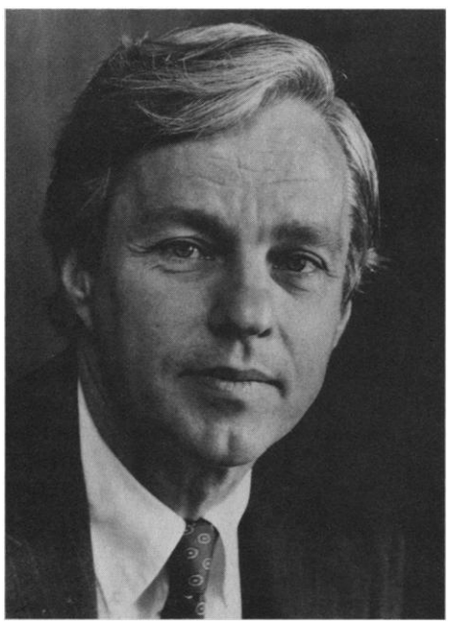
When Washington veterans describe managerial effectiveness as practiced in their town, they use abstractions such as agencies, staffs, and access to the White House. They dwell on adversary contentions: turf fights, budget struggles, and legislative coups. What emerges is the style of an experienced political operator overcoming opposition by any means necessary.

The successful manager is usually far less combative. Anyone who has received a late-night urgent phone call from Dick Atkinson during his tenure as director of the National Science Foundation (NSF) or as chancellor of the University of California, San Diego (UCSD), will attest to his powers of persuasion and his unremitting assaults against problems until they are resolved. But the essence of Atkinson's managerial style is a restless flood of energy. He simply does not rest until he has constructed paths to all of his goals.

On 12 August 1976, about a year after arriving in Washington, D.C., on an 18-month leave from Stanford University, Atkinson was named acting director of NSF after H. Guyford Stever's move to the White House as science advisor. At that time, the foundation's peer review system was under attack in Congress. Intense pressures were being generated on Capitol Hill to mount research efforts directed at national needs with prospects for short-term payoffs. The funding picture for NSF was bleak as the nation struggled with runaway inflation and with an oil embargo by the Organization of Petroleum Exporting Countries.

Single-minded and determined, Atkinson managed to turn the situation around. Peer review was successfully defended against congressional pressure to allocate science support on a geographic basis. Funding for basic research increased by 11% in Jimmy Carter's first budget, a reversal of declining fortunes in the Nixon-Ford years. Total NSF support grew by nearly 30% between 1976 and 1980, the year Atkinson resigned to become chancellor of UCSD.



Richard C. Atkinson

Atkinson's principled and competent leadership of NSF earned him the admiration of congressional critics. Senator William Proxmire (D–WI), who made four Golden Fleece Awards to NSF during Atkinson's tenure as director, remarked at Atkinson's last appearance before the appropriations subcommittee, "You have won the confidence of Congress and of this skeptical senator, and you are going to be sorely missed."

Richard C. Atkinson was born on 19 March 1929, in Oak Park, Illinois. At the end of his sophomore year in high school, he was admitted to the University of Chicago, graduating in 1948 with a Ph.B. degree when he was 19 years old. As an undergraduate, Atkinson was attracted to mathematics and biology, a consequence of after-hours computational work with the biophysics research group led by Nicolas Rashevsky. Atkinson decided to pursue graduate work in biology at the University of Chicago and registered for courses, but in 1950 an unusual opportunity opened up in the Psychology Department at Indiana University.

William K. Estes and Cletus J. Burke at Indiana had developed a mathematical theory of learning formulated in the language of set theory. They were searching for graduate students with mathematical skills to help extend their ideas. Atkinson enrolled at Indiana as a graduate student in the fall of 1950 and studied mathematics and psychology. He completed the course work for a Ph.D. in both fields, submitted a dissertation to the Psychology Department, and was awarded the doctoral degree in 1955.

In 1954, Atkinson enlisted in the U.S. Army. He finished his tour of duty in 1956 and soon after accepted a post as lecturer in applied mathematics and statistics at Stanford University. Despite his degree in experimental psychology, Atkinson was still undecided on possible careers in applied mathematics, psychology, or biology. While at Stanford he met Patrick Suppes, a young logician with strong interests in mathematical models. Atkinson and Suppes understood that advances in mathematical learning theory, as well as in the branches of mathematics that supported it, would create an entirely new environment for education in the form of computer-based instruction. It was a time when the impact of computers was just beginning to affect the traditional barriers between the physical and social sciences. Problems were clearly more important than disciplines.

In the fall of 1957 Atkinson accepted an offer of a tenure-track post in the Psychology Department of the University of California, Los Angeles (UCLA). His career direction was now settled. The next 4 years at UCLA were an exhilarating time. Despite a heavy teaching load, Atkinson wrote a book and a dozen published papers during his UCLA tenure and established himself as one

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of the brightest young psychologists in the United States.

Suppes, meanwhile, was determined to bring Atkinson back to Palo Alto. In 1961, Atkinson returned as associate professor of psychology and entered into a close working relationship with Suppes at Stanford's Institute for Mathematical Studies in the Social Sciences. At Stanford, Atkinson attracted brilliant graduate students and continued to publish four to six, sometimes eight, papers each year, many of which were coauthored with his students. He took on major editorial responsibilities and became acknowledged as a national leader in his field.

In 1964 Atkinson was named professor of psychology at Stanford with affiliate appointments in the Schools of Education and of Engineering. In 1968, the Stanford Psychology Department elected him chairman, a post in which he served until 1973. That same year the membership of the American Psychological Association (APA) elected Atkinson to its Board of Directors, and he also became chairman of the Psychonomic Society, the national organization of experimental psychologists. A year later he was named president of APA's Division of Experimental Psychology, and in 1975 chairman of the Psychology Section of AAAS. Atkinson's rapidly growing reputation in science and education was also recognized in 1974 by election to the National Academy of Sciences, the National Academy of Education, and the American Academy of Arts and Sciences.

During the Stanford years, Atkinson's intellectual interests were focused on the study of human memory and cognition. His research ranged from the formulation of mathematical models of memory and tests of these models in carefully controlled experimental situations to the practical problems of developing computer-based systems for teaching reading and mathematics to elementary school children. A paper published in 1968 with R. M. Shiffrin, one of his graduate students, entitled "Human memory: A proposed system and its control processes," is a statement of Atkinson's outlook at this juncture; it is one of the most widely cited publications in the history of the behavioral sciences (*1*). The citation for the APA Distinguished Scientific Contributions Award presented to Atkinson in 1977 summarizes the style of his work: "For combining classical methods of mathematics with emerging techniques of computer science, the best traditions of experimental psychology with new concepts of information processing, in the advance of psychological theory and its applications." That award also recognized his "pioneering contributions to computer-assisted instruction and mathematical methods for optimizing the learning process."

Ernest Hilgard of the Stanford Psychology Department, a leading psychologist of the World War II generation and a revered teacher, was the author of a well-known textbook, *Introduction to Psychology*, first published in the early 1950s. In 1967 Hilgard asked Atkinson to assist him in producing a new version, so Hilgard and Atkinson coauthored the fourth edition. Then in 1971, Rita Atkinson, who earned her Ph.D. at Indiana University in 1957, joined the team of authors. The book is currently in its ninth edition and has been translated into eight languages (*2*).

In 1975, President Gerald Ford asked Atkinson to become deputy director of NSF. On joining the foundation, Atkinson immediately assumed responsibility for reorganizing the social sciences at NSF and for calming a congressional furor over NSF's controversial science curriculum projects.

In 1977, after his appointment by President Carter as director of NSF, Atkinson confronted powerful pressures aimed at redirecting the foundation's efforts toward applied research on national needs. Atkinson told Congress (*3*): "For the average citizen, for the average member of Congress, it's a very appealing idea to think of scientists as wasting their time. . . . Government and the public have tended to weigh scientific merit based on what they think will be immediately useful. . . . But that's not how progress is made. Progress is made by stumbling in dark areas and shining a light on something that perhaps no one could quite conceive of. What's important is to ensure that the scientific community is not driven by the limited views of what science might do as those views evolve in the Washington bureaucracy. There's just too much pressure in Congress to orient science toward the solution of practical problems."

Atkinson became chancellor of UCSD in 1980. The once powerful University of California system had been languishing for nearly two decades. When Atkinson took up his duties at UCSD, he found the campus at about one-third of its originally programmed size, without a capital construction program, and operating in severe budget austerity. During Atkinson's first 2 years as chancellor, he relied on his flair for opportunistic funding and planning. But by 1983 the University of California system had a new president, David Gardner, and the state had a governor, George Deukmejian, who understood the importance of the university for California's economic well-being. The governor's budgets restored higher education to its proper place in the states's priorities. Funds were appropriated and soon began to flow to the campuses, promising a restoration of UC's traditional excellence. Atkinson's managerial skills were taxed to the utmost by the new-found opportunities to correct long-standing problems, and to build on a scale not seen at UCSD since the post-Sputnik era.

Today, as chancellor of UCSD, Atkinson labors at his accustomed energetic pace. He is no longer the bright, confident, very young man who took psychology by storm in the 1960s. Bold youthful self-assertion has given way to quiet self-assurance. His conversation still sparkles with warmth and friendship, but it is cautious, as befits someone who has survived a long time in the political jungle.

Rita Loyd and Richard Atkinson were married in 1952. Rita has become senior author of the Atkinson, Atkinson, Smith, and Hilgard text. The Atkinsons have one daughter, Lynn, who is a neurosurgeon at the Henry Ford Hospital in Detroit, Michigan.

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