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The art and politics of science

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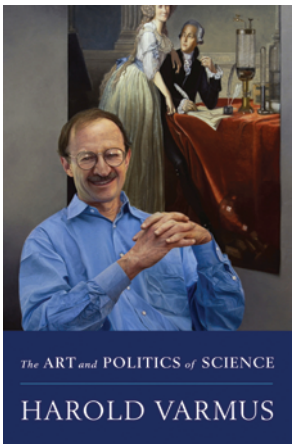
Book Review

Harold Varmus's memoir, The art and politics of science, chronicles the pathway by which he became a scientist, the research endeavor that led to his sharing with J. Michael Bishop the 1989 Nobel Prize for Physiology or Medicine, and his subsequent career as NIH Director. It should appeal to biomedical scientists, young people contemplating or beginning a career in research, and academicians considering a move into scientific politics. In common scientific parlance, Varmus would be described as a late bloomer; he obtained a master's degree in English and completed medical school and two years as a medical resident without any research experience. Like many of his contemporaries, including this reviewer, the existence of a doctor's draft served as a stimulus for Varmus to seek alternatives to military service, and he obtained an appointment to the NIH through the US Public Health Service. There he had the good fortune of almost immediate scientific success in the laboratory of Ira Pastan, where he used molecular hybridization techniques to demonstrate that gene expression in the lac operon in Escherichia coli is regulated by changes in mRNA transcription. This work was presented at a Cold Spring Harbor Symposium, and his career as a scientist was launched. Through night school courses at the NIH, Varmus became interested in viruses that cause cancer, particularly RNA tumor […]



The art and politics of science

Harold Varmus
W.W. Norton & Company Ltd. New York, New York, USA. 2009.
315 pp. $24.95. ISBN: 978-0-393-06128-4 (hardcover).

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Harold Varmus's memoir, *The art and politics of science*, chronicles the pathway by which he became a scientist, the research endeavor that led to his sharing with J. Michael Bishop the 1989 Nobel Prize for Physiology or Medicine, and his subsequent career as NIH Director. It should appeal to biomedical scientists, young people contemplating or beginning a career in research, and academicians considering a move into scientific politics.

In common scientific parlance, Varmus would be described as a late bloomer; he obtained a master's degree in English and completed medical school and two years as a medical resident without any research experience. Like many of his contemporaries, including this reviewer, the existence of a doctor's draft served as a stimulus for Varmus to seek alternatives to military service, and he obtained an appointment to the NIH through the US Public Health Service. There he had the good fortune of almost immediate scientific success in the laboratory of Ira Pastan, where he used molecular hybridization techniques to demonstrate that gene expression in the lac operon in *Escherichia coli* is regulated by changes in mRNA transcription. This work was presented at a Cold Spring Harbor Symposium, and his career as a scientist was launched.

Through night school courses at the NIH, Varmus became interested in viruses that cause cancer, particularly RNA tumor viruses, and in 1970 he became a postdoctoral fellow in the laboratory of Mike Bishop, then a young virologist at UCSF, and subsequently a colleague, collaborator, and close friend. The team led by Bishop and Varmus made one of the fundamental discoveries in modern biomedical science, namely identification of proto-oncogenes in animals, which can be transformed by tumor viruses into oncogenes. Here, Varmus systematically delineates the background of the experiments, the study design, how one experiment led to another, the methodological problems encountered, and how the problems were resolved. His description of the scientific aftermath and clinical implications of the work is particularly interesting. The same scientific saga is also covered in Bishop's memoir, *How to win the Nobel prize* (1). Both books tell a story that makes a strong case for scientific partnerships. As pointed out by Vera John-Steiner, such partnerships are effective because any individual, no matter how gifted, can realize only a fraction of human potential, and collaborations broaden, refine, change, and expand the possibilities of individuals (2).

In 1993, Varmus left his UCSF professorship to become NIH Director, moving from administrating a million-dollar research budget in his own laboratory to managing one of eleven billion dollars a year. He assumed the job at a time when appropriations for the NIH had plateaued. During his tenure, the NIH budget increased significantly (largely because of his effectiveness with congressional committees), research in HIV/AIDS was broadened, sequencing of the genomes of humans and other species was promoted, the study section system for peer review was strengthened, clinical research was invigorated, and the NIH intramural research programs were enhanced. The net consequence was revival of the nation's demoralized biomedical research community, for which he was widely revered by scientists and politicians. Varmus was the subject of a laudatory article in *The New Yorker* that highlighted his effectiveness in playing the symbolic, public role of NIH Director as an advocate of science (3). He was arguably the most effective director after James A. Shannon, who organized the NIH's modern structure more than fifty years ago. Consequently, in 1999, the news that Varmus was stepping down from the most important job in biomedical research after only six years was met with widespread dismay within the biomedical research community. In the memoir, he makes it clear that one factor in his decision was the series of distractions and harassments that went with the job. With the exception of the politicization of stem cell research, none of these hassles was very important, but cumulatively they took a toll. As Harry Truman might have said, he decided to get out of the kitchen — to the detriment of the NIH, which underwent a retrogression after he left. This scenario points to a problem when scientists enter the public arena: unlike professional politicians, we are not used to the rough and tumble of political life.

The last section of the book is devoted to two of Varmus's long-term interests, the globalization of medical research in underdeveloped countries and the promotion of reform in scientific publication.

In brief, Harold Varmus has written an engaging book that convincingly portrays his larger-than-life personality.

1. Bishop, J.M. 2003. *How to win the Nobel prize: an unexpected life in science*. Harvard University Press. Cambridge, Massachusetts, USA. 271 pp.
2. John-Steiner, V. 2000. *Creative collaboration*. Oxford University Press. New York, New York, USA. 259 pp.
3. Fallows, J. 1999 June 7. The political scientist. *The New Yorker*. 66.