

BOOKS & ARTS

Biologist in the Beltway

Nobel prizewinner Harold Varmus's autobiography reveals his skill and passion for research and politics, and shows why he is one of Barack Obama's top science advisers in Washington DC, explains **Iain Mattaj**.

The Art and Politics of Science

by Harold Varmus

W. W. Norton: 2009.

256 pp. \$24.95, £16.99

Anyone knowing, as I did, that Harold Varmus began graduate studies in English literature before switching to science would be forgiven for expecting a book that explores the relations between art, science and politics. Indeed, the original idea behind the series of three public lectures on which the book is loosely based was to re-examine the science and humanities 'two cultures' concept of physicist and novelist C. P. Snow. Instead, Varmus has produced a diverse series of essays focused on aspects of his own life. Varmus describes his choice of science as a career, his research and his experience as director of the US National Institutes of Health (NIH), the world's largest biomedical research funding organization. His views on various fields of science politics, in which he is or has been engaged, complete the book.

Varmus's path from college to cancer research makes interesting reading, especially to a European reviewer for whom such a change in direction would require restarting university from scratch. While majoring in English at Amherst College, Massachusetts, he fulfilled his pre-medical requirements. He then began graduate studies in English literature at Harvard University, but found time to attend a few Harvard Medical School classes with college friends. His doubts about finding an interesting career in literature and a fascination for advances in understanding biology and its medical relevance — fuelled among other things by a visit to Moscow, where he heard about Marshall Nirenberg's account of helping to crack the genetic code — led Varmus to successfully reapply to medical school. Despite his father being a physician, his parents were less than overjoyed at Varmus's return to the 'conventional' path. Families can be hard to please.

Chance soon intervened in the shape of the Vietnam war. On graduation, Varmus deferred the draft by doing two years of training at the NIH. This first introduction to basic laboratory research with Ira Pastan — who is still a prolific biomedical researcher — used bacterial viruses to select and identify individual genes that regulated the expression of other genes.



Harold Varmus's team spirit has helped him succeed both in the lab and elsewhere.

Compared with the intellectual distance Varmus had already covered, it was a relatively small step from there to his work with virologist J. Michael Bishop and others, and to the discovery that the cancer-causing *src* gene of the Rous sarcoma virus was a variant form of a conserved host gene rather than a viral peculiarity. Others quickly discovered numerous cellular genes that can cause cancer when mutated, and Varmus was awarded the Nobel prize. Varmus's description of the satisfactions he found in experimental research, particularly in the early days, is a lucid exposition of why science can be such a rewarding career.

Less satisfying is the section on his directorship of the NIH. Varmus declared of his role: "The inevitable point of departure must be money." By this standard, his tenure between 1993 and 1999 was a huge success. It saw an unprecedented government pledge to double the NIH budget between 1998 and 2003. But the book does not give a satisfactory explanation for this political success, or of Varmus's undoubtedly important role in it. Those of

us who watched from overseas with admiration and envy would have liked to learn more about how it was achieved. His ability to connect basic research to medical application is frequently evident elsewhere in the book. Was this a result of learning on the job, or does it partly explain why he was such a successful advocate for the NIH?

It would also have been interesting to hear Varmus's opinion on whether the bust in NIH funding that followed the increase could have been cushioned. The unfettered growth of biomedical institutions across the United States during the boom years soon outstripped the NIH budget's growth, leading to damagingly low success rates for NIH funding programmes when the budget plateaued. Should, and could, the NIH have a role in coordinating more sustainable growth?

In another section, Varmus describes his own research in some detail. It is fun to remember just how indirect and crude many of the molecular technologies available to us in the 1970s and 1980s were, compared with today. He then describes three areas in which science and politics are intertwined — stem-cell research, global-health research and practice, and open-access publishing. In all three, Varmus provides balanced summaries of the current scientific potential and political debate while leaving no doubt as to his own position. Particularly in the case of open access, his advocacy combines passion with logic into a very persuasive argument.

The Art and Politics of Science is a fascinating but deliberately incomplete and stylistically patchwork autobiography. Varmus reveals a sharp, analytical intelligence as well as great enthusiasm for his work and profession. His preference for working as part of a team and his ability to do so is repeatedly demonstrated throughout the book. This suggests he has the modesty required to allow others to take their share of the credit. The sections on becoming a scientist and on his NIH directorship are accessible, but those describing his own research and current areas of science-policy debate are more appropriate for science professionals, policy-makers and administrators. Varmus's personality shines through. ■

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