BOOK REVIEW

A Passion for DNA: Genes, Genomes and Society. James D. Watson. Cold Spring Harbor Laboratory Press, 2000. 250 pages. Can$42.50. ISBN 0-87969-581-1

The structure of DNA was announced in 1953 by James Watson and Francis Crick. The Human Genome Project was completed in 2001. Under 50 years for a revolution in knowledge of life and the ability to manipulate it. The early events that catapulted Watson and Crick to fame and prizes are history now. For scientists too young to have been reading *Nature* in 1953 but old enough to want to know how the story unfolded, Jim Watson's book — or parts of it, at least — makes compelling reading.

A Passion for DNA is a collection of essays and edited speeches presented over the past 30 years. As in that most widely read of scientific books, *The Double Helix*, Watson is frank, lively and quite unabashed at the possibility he may annoy colleagues with his very personal style of presenting scientific history.

In 1953, when Watson and Crick announced the structure of DNA, Watson was a post-doctoral fellow working in Cambridge, UK, whose stipend had been cancelled because he had disobeyed rules. Returning to the United States, he held appointments at CalTech and Harvard before becoming director and then president of the Cold Spring Harbor Laboratory.

The book is presented in sections: "Autobiographical flights" recounts Watson's origins in post-depression Chicago and his values — books and learning to achieve freedom from superstition, biology (he was a passionate birder) and the nobility of the Democratic Party. At 15 he entered the University of Chicago, not because of his brilliance but because Hutchins, the young president of the University, felt American high schools were a disaster that could not be reformed. Rather than waste money on them he believed in getting students into college early. Jim might have remained a birder had he not audited Sewell Wright's lectures on genetics and encountered Erwin Schrodinger's *What is Life?* He decided then (he tells us) that the secrets of biology were locked in the gene and he would spend his life studying it.

The reader is taken through his rejection for graduate studies by CalTech and Harvard to his fortuitous placing in Bloomington, Ind. Muller (*Drosophila*) headed the department; Sonneborn studied paramecia; and the newcomer was Salvador Luria, working on phage. Watson felt the first of these was played out and paramecia were too slow, and he soon chose phage. He worked with a succession of European expatriates who inspired him. They in turn saw something unusual in this young man and supported him. Max Delbruck commented on his PhD thesis on X-ray inactivation of phage that it was "lucky that he not found anything exciting...thereby being trapped into a rat race...no time to think or learn what other people are doing."

His post-doctoral placement in Copenhagen did not work out, but his mentor Luria, after meeting John Kendrew, arranged a switch to Cambridge. In 1951 the Medical Research Council Unit for the Study of the Structure of Biological Systems (later the Laboratory of Molecular Biology [LMB]) housed Max Perutz, John Kendrew, Francis Crick and Hugh Huxley, with Lawrence Bragg the Cavendish Professor. Watson had landed in a unique intellectual climate, fine minds collectively passionate about biology, which they wished to transform "from a morass of boring facts into an intellectually satisfying discipline like physics or chemistry." Fred Sanger, Rodney Porter, Peter Mitchell, David Keilin and R.A. Fisher contributed to this environment and Sydney Brenner arrived shortly after.

The LMB has had remarkable success, which Watson attributes first and foremost to the quality of the people and their interaction. But tenured positions and adequate stable funding permitted high level goals, where 5 to 10 years could be devoted to solving a problem. However, Watson comments that the funding and the environment did not encourage senior people to move, and that Britain benefited less than other countries from the leadership in Cambridge.

"Autobiographical flights" was, for me, the most fascinating part of this volume because, in an admittedly biased account, the reader is given the anatomy of a great intellectual discovery. Watson and Crick were first, but others were close behind; if not them, someone else would have got the double helix.

Later, in 6 essays entitled "The ethos of science" Watson recognizes this while noting that mountains are seldom known for their second ascent and credit in science goes only to whoever is first.

Four pieces titled "Recombinant DNA controversies" provide Watson's personal account of how irrational concerns about risk led to stringent controls on what could be done in and with what level of containment. Without evidence, risk was magnified and science held back for 6 years. But in the section on "Ethos" he takes a similar approach and sounds the alarm over cloning mammalian forms. Three essays entitled "The war on cancer" deal with the politics of science in North America. A political decision was made to declare war on cancer and huge amounts of money became available. As a laboratory director Watson needed some of that money, but he knew that to get it he would have to promise what he could not deliver — a cure. If funding is politicized, goals will tend to be short term.

The book concludes with 6 short essays "Societal implications of the Human Genome Project." Watson is at his best when he writes about science. The reader gains an impression that sociologic issues are of little interest to him; his stature is such that his views will be sought, but he lacks depth and he may lack solid beliefs on which to ground his opinions.

James Watson does write with passion — passion for science, for the ideas that spark discovery and for the environment that nurtures young minds preparing to break new ground. He recognizes that the role he played was, in part, fortuitous, but he tries to identify frankly the qualities that set him apart as a young scientist and enabled him to scale the heights. For any reader who has not read Watson and is interested in the genetic revolution, this slim volume is compelling and enjoyable reading. For politicians in science it should be required reading for its insights into how successful science works — and how it doesn't.

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