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## BIOLOGY

### Watson's World

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*Inspiring Science: Jim Watson and the Age of DNA.*

Edited by John R. Inglis, Joseph Sambrook and Jan A. Witkowski.  
xxxii + 503 pp. Cold Spring Harbor Laboratory Press, 2003. \$35.

Last year was the 50th anniversary of the discovery of the structure of DNA and the 75th birthday of codiscoverer James D. Watson, prompting a flurry of books that portray Watson as an untiring promoter of DNA and its place in science and society. The premise of *Inspiring Science* is that "the age of DNA" has been greatly shaped by Watson's activities.

Watson's actual research on DNA, from 1950 to 1953, was of relatively short duration, so the bulk of the volume consists of the testimony of more than 50 individuals, most of them molecular biologists, about his effect on them or on the institutions with which he was associated: the Biological Laboratories at Harvard University (1956 to 1976), the Cold Spring Harbor Laboratory (1968 to the present) and the National Center for Human Genome Research (as it was then named) at the National Institutes of Health (1988 to 1992). Many of the book's contributors are now influential figures in their own right (half a dozen are Nobel laureates). This volume demonstrates that Watson's importance derives not so much from his discoveries or scientific ideas (other than the double helix, of course) as from his remarkable ability to recruit and shape the careers of the next generation of scientists and from his various projects for spreading DNA literacy through outreach, education and publishing.

Watson's pervasive influence is traced chronologically as he evolves from a student in the 1940s into a research scientist in the 1950s; a research manager, mentor and author in the 1960s; and an administrator and a promoter of the public understanding of science since the 1970s, when basic research on DNA came to be overshadowed by its far-reaching applications in the biotech industry and by the Human Genome Project. Watson has overseen not only a research center but also the publication of textbooks, laboratory manuals and journals, as well as educational projects ranging from community outreach to a graduate school, which bears his name. Indeed, he is credited with having converted an almost bankrupt, dilapidated laboratory into a "DNA Town" with a research, teaching and conference center; community outreach programs; a publishing house; and new buildings, including hosting facilities.

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The first section of the book contains essays by Renato Dulbecco, Gunther Stent and Seymour Benzer, who met Watson during his graduate studies at Indiana University (from 1947 to 1950) and got to know him as the youngest member of the Phage Group. All three are adept storytellers. Their anecdotes feature brash behavior but also reveal Watson to have been unusually well-informed about both science and scientists. He is portrayed as a perceptive but opinionated master of gossip, who knew how to take advantage of the intertwined scientific and social pecking orders. He appears to have had an early capacity for opportunistically "surveying the landscape" while calculating well in advance his next move, free from any burden of loyalties. The competitive atmosphere in graduate school presumably toughened him to aspire to always come in first. Watson "had few filters between his mental processes and verbal expression of his opinions," says Dulbecco, who endured his share of

outbursts and offensive comments but maintains that Watson's "unedited" opinions were invariably useful to him. Stent's recollections zero in on Watson's clever manipulation of unsuspecting older scientists. He reports that Watson admitted to having managed to relocate to the Cavendish lab at the University of Cambridge—for which he was scientifically unprepared—by misinforming his prospective hosts as to his intentions and plans.

The section on Watson's two-year stay at the University of Cambridge is disappointingly brief. Despite considerable public interest in the still unresolved ethical, historical, social and scientific issues surrounding the discovery of the double helix, no effort was made to include an updated statement by Watson or the other protagonists regarding Watson's position on those issues. A letter to Watson from Max Perutz, written shortly before his death in 2002, focuses on Watson's manners, and an essay by Francis Crick deals with his work with Watson on the structure of viruses in the mid-1950s, on the grounds that this aspect of their collaboration is less known. A reminiscence by Sydney Brenner, who first met Watson in the Cavendish Laboratory, perceptively calls attention to his profound understanding of the "politics of getting things done."

The reception of the model of the double helix in the United States is reflected in the comments of 11 participants in the June 1953 symposium at Cold Spring Harbor, where Watson introduced the model to the virus research community. Most of their recollections include an obvious dose of hindsight (a common malaise in the scientific community), but Charles Yanofsky and Waclaw Szybalski make it clear that acceptance of the double-helix theory was neither automatic nor unanimous.

Watson's somewhat anticlimactic postdoctoral years at Caltech from 1953 to 1955 are recalled in an illuminating essay by Alex Rich, who recounts in impressive detail his and Watson's failed joint efforts to find a double helix in RNA. Paul Doty's and E. O. Wilson's overviews of Watson's time at Harvard are particularly insightful essays that complement each other nicely: Doty puts the best possible spin on this segment of Watson's career, whereas Wilson (in an excerpt from *Naturalist*) suggests that the nickname Watson earned through his zealous crusade against the declining empire of classical biology—"the Caligula of biology"—was well deserved. It is unfortunate that this section includes no essay by Wally Gilbert, who is widely known for being the most important discovery Watson made at Harvard.

Even if one accepts Doty's generous assessment that Watson had a flair for tackling risky and important problems (most notably mRNA) and takes at face value the praise of former postdocs and students (such as Benno Müller-Hill, Joan Steitz and Mark Ptashne), Watson's two decades at Harvard were a period during which his "literary" accomplishments outshone his scientific ones. *Molecular Biology of the Gene*, first published in 1965, became a successful textbook, which saw several editions, and *The Double Helix* (1968) became a bestseller despite Harvard University Press's refusal to publish it.

Notable essays on Watson's role as the entrepreneurial director of the Cold Spring Harbor Laboratory were contributed by former director John Cairns, who recalls the decade prior to Watson's arrival; Norton D. Zinder, whose "job" it was to dissuade Watson from frequent resignations; Anne Skalka (one of only two women contributors), who recalls her experience as a postdoc in Alfred Hershey's group in the mid-1960s (before Watson's arrival as director); and Philip Sharp, who recounts his mildly strained experience as a postdoc participating in the Nobel Prize-winning discovery of gene splicing in the early 1970s. Also, half a dozen younger protégés, including Raymond F. Gesteland and Thomas Maniatis, explain Watson's decisive influence on them.

Several trustees of Cold Spring Harbor Laboratory reveal an unknown side of Watson as a persistent administrator, who—despite his reputation for difficult manners—eventually mastered community public relations and the art of fund-raising. The lab's wealthy neighbors donated estates or approved visionary land acquisitions, new buildings and endless landscaping, often under Watson's threats to resign, cleverly delivered while storming in or out with hair and shoelaces undone so as to best convey the presumably more persuasive allure of a mad genius.

Watson's tenure as director of the NIH side of the Human Genome Project was short and turbulent. The appointment ended when NIH Director Bernardine Healy fired him (over differences of opinion on the patenting of genes and her perception that he had conflicts of interests because of his ties to the

pharmaceutical industry). All of the contributors who discuss this phase of Watson's career insist that he played a key role in forging the initial consensus needed to gain support for the project. Robert Cook-Deegan makes a most insightful argument on the unintended consequences of Watson's decision not to fund cDNA research at NIH. Nancy Wexler illuminates Watson's role in allocating funds for studying the ethical, legal and social implications of science (the ELSI initiative)—an allocation that played an important role in securing social and congressional goodwill for the project.

Bruce Alberts and David Botstein, among others, recall Watson's profound interest in the public understanding of science and his role in producing innovative textbooks and inspiring undergraduates with public lectures on frontier science. Coeditors Inglis and Witkowski describe Watson's initiatives in expanding the publishing and conference programs at Cold Spring Harbor Laboratory.

Interspersed among the personal recollections of colleagues are other items of scientific and historical interest: a selection of Watson's scientific papers and a bibliography of his writings; a revealing obituary Watson wrote for Max Delbrück; photographs, some previously published and some new; and several interesting "literary" productions. The latter include a brief letter from nonagenarian British novelist Naomi Mitchison, who was the mother of Watson's scientist friend Avrion, the daughter of physiologist J. S. Haldane and the sister of biologist J. B. S. Haldane. She remembers "that Jim was more or less in love with me" when he visited her home in 1956. (Twelve years later, he dedicated *The Double Helix* to her.)

The three editors should be commended for their effort in assembling so much informative and entertaining material on a celebrity scientist. The recollections contained here are likely to help change the simplistic image of Watson as a "crazy genius" searching for answers to the "secret of life." The editors' introductions to each section, however, apparently meant to dissuade reading between the lines, should have been omitted. Similarly, their "Timeline" juxtaposing Watson's accomplishments and honors with landmarks in the history of 20th-century science smacks of a pretentious "cult of personality." The foreword by Matt Ridley is also overdone, arguing for Watson's uniqueness in exaggerated terms.

These recollections, combining authenticity and insight with hindsight, will greatly help with the task of situating Watson's contributions to the history of molecular biology and the age of DNA. However, that task cannot be undertaken until more symmetrical analyses, ones that systematically cover failures as well as successes, become possible. Yet half a story, the better half to be sure, is better than no story at all.—*Pnina Geraldine Abir-Am, Visiting Scholar, Program in Women's Studies, Northeastern University, Boston*

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