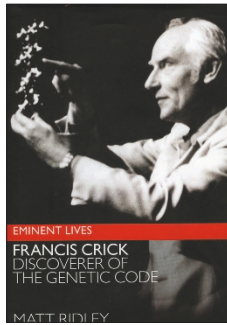


Cipher sleuth



Francis Crick: Discoverer of the Genetic Code

By Matt Ridley

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Reviewed by Michael A Goldman

I never met Francis H.C. Crick, but I'm not a bit surprised that James D. Watson never found him in a modest mood. No two names are more intimately associated with the modern revolution in molecular genetics than Watson and Crick. Ridley's biography puts Crick in the "Eminent Lives" series with George Washington and Ludwig van Beethoven. It is inspiring, lively and informative.

As a boy, Crick liked to think about mysteries and was concerned that they'd all be solved before he grew up. "Don't worry, ducky," his mother said. There was, indeed, plenty left for Crick to discover. Crick was rather openly against religion, but he did put his faith in science. His first goal was to discover the essence of life, and his work in molecular genetics would take us a big step closer to closing the book on vitalism—the concept that life could not be explained by physicochemical principles alone. His second goal was to understand the material basis of human consciousness, but here the mystics may still have the upper hand. Ridley's account leaves me genuinely concerned that science has lost one of its most clever practitioners and that critical advances will, as a result, come more slowly.

If there's any part of this book Crick might wish hadn't been written, it would be the part about his strong views on eugenics. Writes Ridley, "Crick's libertarian views on drugs did not extend to other subjects." He goes on to quote notes from "Crick's only public foray into policy issues," such as "Have people a right to have as many children as they please? The answer must be no—so how do we decide? Should thalidomide babies be allowed to live?... We cannot continue to regard all human life as sacred... Should babies only be legally born when they are, say, 2 days old—i.e., have to pass an acceptance test by society. (We do this for motor cars—why not people?)"

A staunch reductionist, Crick embraced the idea that gene action could explain most or all of intelligence. He supported Jensen and Shockley, writing, "I think it likely that more than half the difference between the average IQ of American whites and Negroes is due to genetic reasons, and will not be eliminated by any foreseeable change in the environ-

ment." Watson, in his public appearances and comments, is also near the extreme when it comes to attributing human behavioral traits to genetics. It is perhaps only natural that the two scientists whose names are most closely associated with the modern molecular understanding of genetics should harbor these opinions, although some geneticists today shy away from the study of genetics and behavior because of the potential for misinterpretation.

The general perception that the key contributions of Rosalind Franklin were not appropriately valued and credited is an unfortunate episode in the story of DNA. Ridley defends Crick's innocence in the whole affair, pointing out the months during which the Cambridge folks agreed to step aside and let work on DNA proceed only in the Wilkins and Franklin laboratories in London. Time and again, Ridley reminds us that Franklin stayed with the Cricks during her chemotherapy and remained good friends with them. Crick later wrote, "The data which really helped us to obtain the structure was mainly obtained by Rosalind Franklin, who died a few years ago." But she couldn't share in the Nobel Prize because of her untimely death.

We teach the scientific method in schools and colleges today, and we assert that the public will understand and appreciate our work if only they know how intricate our reasoning is, how careful our methods and how subject to rigorous experimental test are our conclusions. But it is not so simple. Crick's greatest strength was as an idea person, who thought and read deeply, put facts together and theorized not about enzyme X catalyzing reaction Y but more generally about concepts like linear chains of DNA bases encoding information, a coding intermediate (RNA), a code-reader (transfer RNAs and ribosomes) and a protein whose three-dimensional structure is specified by a linear sequence of amino acids. More of a thinker than an experimenter, Crick's *modus operandi* included interviewing experts, talking out ideas and then encouraging others to do much of the dirty work. Crick had a penchant for accumulating the most obscure facts, wading through long, dull papers "because there might be a clue." Ridley sums it up aptly: "From the mass of confusing results... he had somehow drawn nearly all the right conclusions and had been distracted by almost none of the red herrings. This intuitive talent... was what made him so valuable to his colleagues..." Crick's thinking would, in time, help to decipher the genetic code, but his understanding of the broad strokes was all there in a letter to his son in March of 1953.

During the last 18 years of Crick's life, he turned his attention to the next great mystery—consciousness. Crick remained steadfast in his assertion that we could accomplish this by knowing the molecular mechanisms and anatomy of the brain. This "astonishing hypothesis" is itself a bold statement of faith in science. With or without evidence, Crick's assertion provides even now a challenge to explain that which we were once willing to concede could not be explained.

The inspiration in *Francis Crick* comes not just from the life of a great scientist and a wonderfully engaging human being. It is a story of one person's contribution to a great achievement of the last century. It is an examination of how Crick thought about and did science, a story of warm relationships with family and with other scientists and a call for all of us to think big and make our own unique contributions in the future.

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