The New Atlantis
A Journal of Technology & Society

Francis Crick, RIP

The Man, the Mind, and the Molecule

On April 25, 1953, the scientific journal *Nature* announced to the world the beginning of a new age in biology. "We wish to suggest a structure for the salt of deoxyribose nucleic acid (DNA)," began an article by two young scientists in that day's issue. And with typically British understatement it continued, "This structure has novel features which are of considerable biological interest."

The Briton behind that understatement was Francis Harry Compton Crick, who died in July 2004 at the age of 88. Crick, together with his American colleague James Watson, discovered the double helix structure of DNA and gave a massive boost to the modern science of molecular biology, and with it the biotechnology revolution. The two men (together with Maurice Wilkins who had done related work) shared the 1962 Nobel Prize in Medicine for the discovery.

Crick was born on June 8, 1916 in Northampton, England, where his father was a shoemaker. Before he was 10, young Francis had demonstrated a deep interest in science, and particularly chemistry and physics. He earned a degree in physics at University College, London in 1937, and set out on a fairly mundane course of research into the viscosity of water under pressure.

When the Second World War broke out, Crick was put to work for the British Navy developing magnetic and acoustic mines for use against German submarines and ships. After the war's end, he found himself unsure of what

Copyright 2004. All rights reserved. See www.TheNewAtlantis.com for more information.

work to pursue, and he followed what he would later describe as the "gossip test," by which whatever you find yourself gossiping about with friends and colleagues is what interests you. Crick said he found himself gossiping most about the promise of two fields: molecular biology and neuroscience. Of the two, molecular biology seemed to him most readily appealing, and so he pursued the subject at Cambridge, working first as a researcher on a project examining cell cytoplasm, and then studying the structure of proteins with X-ray diffraction.

While working on the latter project, he met the precocious 23-year-old American James Watson, and the two immediately found a common language. "Jim and I hit it off immediately because a certain youthful arrogance, a ruthlessness and an impatience with sloppy thinking came naturally to both of us," Crick wrote. The two set to work on a key problem in molecular biology: the structure and function of the DNA molecule which was by then known to carry genetic information across the generations. Watson and Crick decided that rather than seek out the structure by X-ray diffraction or experimentation, they should construct models of possible structures, and see which might fit the data that already existed.

In February of 1953, they hit upon a model that worked—the now famous double helix structure, which helped to explain cell division, and which also suggested that the arrangement of bases along the molecule might constitute a kind of code, which cells could translate into proteins.

Crick continued to work on the consequences of their discovery for decades, helping to "crack" the DNA code and, together with his Cambridge colleague Sydney Brenner, studying the genetics of embryos.

In 1977, at the age of 61, Crick announced that he was leaving the field of molecular biology and turning to what had been the second subject of his "gossip" in the 1940s: neuroscience. Crick left Britain for California, and began to work on the science of the brain at the Salk Institute in San Diego, where he would spend the remainder of his career. His aim was to offer a biological description of consciousness, and to explain free will in pure neurological terms.

In this, as in much of his work, Crick was driven by a profound and fiery atheism, and saw himself combating an almost medieval mindset on the part of religious communities in America and Europe. Back in 1960, he had accepted a position at Churchill College, Cambridge on the condition that the (then new) college would not build a chapel for its faculty and students. A few years later, a donor offered a large sum of money to the college for the construction of a chapel, and when the faculty voted to accept the donation, Crick resigned. In explaining his work in neuroscience, Crick described his project as standing in opposition to Catholic doctrine—or at least his vastly oversimplified and caricatured understanding of it.

Copyright 2004. All rights reserved. See www.TheNewAtlantis.com for more information.

In the end, Crick did not make great progress in his quest for a materialist description of consciousness, though he did do quite substantial and important work in the field of neuroscience. He continued his work on this project to the very end of his life, and at 88 was still actively engaged in many intellectual pursuits. Crick leaves behind his wife, three children, four grandchildren, and a world forever altered by his insight and discovery.

Copyright 2004. All rights reserved. See www.TheNewAtlantis.com for more information.