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VII. Career Paths and Biochemistry Books

Previously, I have written articles about books to read, mostly fiction, to learn about careers in biology/environmental science, the law, political science, art & archeology, engineering, and writing. This time I want to speak about chemistry, which in the modern world has come to look less and less like classical chemistry and increasingly more like biochemistry, a word and career that took on greater meaning for the public when James Watson and Francis Crick worked out the molecular structure of DNA in the early fifties. For that, they received the Nobel Prize in Physiology or Medicine in 1962 with Maurice Wilkins. That grand story and more is written in non-fiction, so let me tell you about those wonderful reads.

First and foremost definitely is “The Eighth Day of Creation: The Makers of the Revolution in Biology,” by Horace Judson (1979). This is not a technical chemistry book, so you need not be a chemist or a molecular biologist to read it, though the titles of the three main sections may suggest otherwise: (1) DNA – Function and Structure: the elucidation of the structure of deoxyribonucleic acid, the genetic material; (2) RNA – The Functions of the Structure: the breaking of the genetic code, the discovery of the messenger; (3) Protein – Structure and Function: the solution of how protein molecules work.

The book is actually popular science writing at its best, and an historical account of one of the most significant scientific breakthroughs in human time on Earth. Its reverberations are still being felt more than 50 years later, and pointedly on target to revolutionize the treatment of disease. As I said at the outset, chemistry has become biochemistry to a great degree, and this book will open your world to how that has happened. Career paths have multiplied with that.

James Watson wrote his own firsthand account in several books, including one with Andrew Berry, with the title “DNA: The Secret of Life” (2003). It is hard to argue with firsthand accounting of a story, but I suggest to start with Judson.

There is a side story to tell as well, which is that of “Rosalind Franklin: The Dark Lady of DNA,” by Brenda Maddox (2002). Rosalind Franklin, having died young and before the granting of the Nobel Prize, which is only given to the living, did not enjoy Nobel recognition. She also has not been properly recognized for reasons that have to do with lack of gender equality in the sciences of the time. Maddox tells that story, and it is one that young women entering scientific careers should know.

The bookend read to Judson is “A Crack in Creation: Gene Editing and the Unthinkable Power to Control Evolution,” by Jennifer A. Doudna and Samuel H. Sternberg (2017). These “bookend” titles alone tell you how earthshaking the sequence of events: (1) the unravelling of the structure of DNA; (2) knowledge of the genetic code from that; and (3) the beginnings of biochemical editing of genes. Doudna and Emmanuelle Charpentier received the Nobel Prize in Chemistry in 2020 for their work.

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For the young person who may be interested in a career in chemistry, there can be no better pathway to understanding what it means to be a chemist than to read these books, especially the “bookends.” Aside from that, these are books about doing great things in a life, the things that change the world forever. They are inspiration for any reader, no matter what the imagined career, or, for that matter, for the reader who just wants to reflect in retirement about what she/he might choose today as career. Do give them a try.

Charles B. Greenberg
Board Director, Murrysville Community Library Foundation