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The Double Helix

Setting: set in Europe, mostly in England around the turn of the decade 1950 and a few years after.
Time period: About 1950-1954. Earlier time period, accounts of history.
Characters: main characters are James D. Watson and Francis Crick. Book is in first person limited as it recounts these scientists attempt at cracking the DNA code. Among other important characters are Maurice Wilkins, Rosalind Franklin and Linus Pauling.
Plot: the novel describes the events that led up to the discovery of DNA. It begins with Watson's description of his partner, Francis Crick and how they came to meet. It then progresses to describe Watson's experiences at Cavendish lab in Cambridge University, where the discovery of the DNA double helix structure eventually takes place in 1953

Among the most esteemed contemporary novels of our time are those that recount history changing discoveries and inventions. I am pleased to report that The Double Helix, by author and world known biologist James D. Watson belongs to this category. As the novel progressed, I became further drawn into the story. While this type of an effect on the reader is one sought by all authors, I found it particularly impressive on account of my prior knowledge of the ending, that Watson was still able to include a sense of ambiguity. Throughout the text, Watson is careful to reveal not only the pieces to the DNA puzzle, but also the context in which they were discovered.

The novel begins with a trip to the mountains of Italy, one attended by some of the most important characters in the novel, and highly renowned scientists of their time. While recounting the trip, Watson introduces several of them; among them is Francis Crick, a scientist now known for his collaborative effort with the author to solve the mystery of the structure of DNA. Watson is self portrayed as a young aspiring researcher with nothing but a bachelors degree and a fellowship to England to work with physicists on the three dimensional structures of proteins. While Watson's interest in DNA proceeds his trip to England, it is Linus Pauling's discovery of the a helix structure that sets off Watson's pursue of a solution. This inspiration pushes Watson to learn more of Maurice Wilkins crystallographic DNA photos. Knowing that he will not gain any experience with crystallography at Cal Tech, Watson sets off to *learn* to read these essential photos.

Soon, the author befriends Francis Crick, a PhD student also researching the structure of proteins in the Cavendish lab in Cambridge. After a few brief conversations, the two realize their common interest in the yet to be discovered structure of DNA. Watson also learns that the Cavendish lab is understaffed. Seizing this opportunity, he quickly joins the team at Cavendish in the hope that Crick will share his knowledge of crystallography pictures as well as

his ideas about the structure of DNA. Thusly, these two scientists begin to work together, although not on DNA structure at first.

Both Crick and Watson face disapproving judgment as they increasingly neglect their designated topics of research to dig further into the DNA mystery. While Francis Crick is criticized by the head of Cavendish lab, Sir Lawrence Bragg, and faces loss of his PhD study at one point, Watson's fellowship is threatened under the claim that he was sent to study protein structures and the fellowship will not support his invalidated pursue of the structure of DNA. Additionally, more conflict arises, when the two contact Maurice Wilkins in hopes that he will share the crystallographic photos, only to learn that Rosy (Maurice's research partner) has claimed the photos and refuses anyone their access. Minute problems like these are worked into the novel to provide insight into the life and reality of the discovery of the DNA double helix. Nevertheless, Watson and Crick persevere and page by dawdling page the DNA problem is solved.

After devising a few incorrect models, Watson and Crick finally realize the importance of a previous study that confirmed a similarity of ratios between both pyrimidines (Thymine and Cytosine) and both purines (Adenine and Guanine). Watson and Crick's insight to these similar ratios lead to the rethinking of the possibility of hydrogen bonding between nucleic acids. Since the hydrogen atoms were said to be 'floating' (i.e. did not remain in a fixed position), Watson and Crick had previously ruled out hydrogen bonding. With the bond problem out of the way, Watson and Crick get to work on the molecular models, making sure every step agrees with Maurice's crystallographic photos.

A first hand journey through one of the most important discoveries of our time, The Double Helix progresses smoothly among different stages of the process and allows the reader insight into a world not often written about. Having previous general knowledge of the story, I was happy to find myself completely indulged in the novel frequently, while the presence of photographs and copies of actual letters and notes of explanation of the findings in the story, added a touch of reality.

While important concepts were explained to some degree, the author nonetheless assumes that the reader has basic understanding of chemistry and chemical concepts. Watson explains complicated material that is essential to the understanding of the story by utilizing chemical terms and phrases not commonly understood by those unfamiliar with chemistry basics. A great science read, this novel both entertaining and inspiring.