The Double Helix Summary

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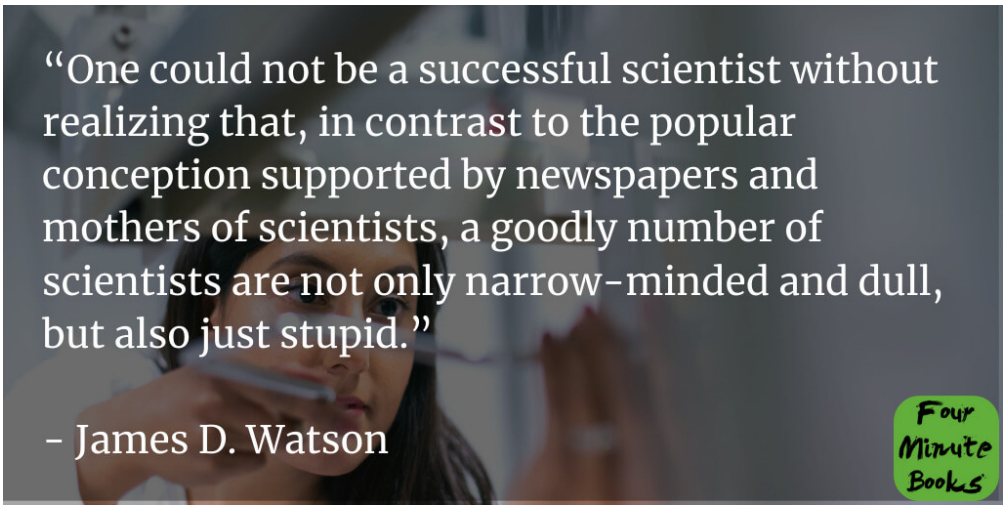
1-Sentence-Summary: *The Double Helix tells the story of the discovery of DNA, which is one of the most significant scientific findings in all of history, by explaining the rivalries, struggles of the prideful scientific community to work together, and other roadblocks that James Watson had on the way to making the breakthrough of a lifetime that would change his life and the entire world.*

Read in: 4 minutes

Favorite quote from the author:



When Charles Darwin proposed that all living things are related, and certain traits are passed down among species, he didn't know-how. That's because he wrote the groundbreaking *Origin of Species*. *We* didn't know how exactly genes were passed on.

All of this changed with the revolutionary discovery of the structure of DNA. Darwin was true, after all. This results in unlocked so many more mysteries of science. Making it one of the greatest scientific discoveries of all time.

Have you ever been curious about how it all went down? In *The Double Helix: A Personal Account of the Discovery of the Structure of DNA,* we hear the story from none other than one of the two scientists who made the breakthrough: James Watson. He tells a surprising story of rivalries and oversized egos among scientists and how two ambitious, unexpected young researchers could unlock the mystery of DNA.

Here's a summary of the book in just 3 lessons:

1. Our recent advancements in our understanding of DNA began with a team of chemists in the 1950s named James Watson and Francis Crick.

2. Things get tough as they competed with others that were also studying DNA.
3. Through perseverance and errors of their competition, Watson and Crick made breakthroughs in the study of genetics that won them a Nobel Prize.

Let's get right into it and start learning!

Lesson 1: Chemists James Watson and Francis Crick's DNA research in the 50s was the foundation for our current understanding of genetics.

We know that DNA is a molecule made up of two strands. We also called that double helix. It contains all of our genetic information. **It is a huge part of science today, and we are learning more and more about the human genome every day.** But back in the 1950s, no one cared much about DNA or understood its purpose.

We all know that genes are passed down. However, scientists didn't really care about how this happened. Because DNA appeared relatively simple, researchers didn't think it could do something as important as to hold genetic information. Chemists and physicists were interested in it but didn't consider its link to genetics.

X-Ray crystallography is the only way to see DNA at the time. A Professor of Indiana University, Prof. Salvador Luria studied viruses. He needed to use the technique, but he wasn't interested in learning how. So he sends Watson, a PhD student, to go to Europe and learn for him.

In Europe, he went to a conference to learn about the technique and was fascinated when he learned that DNA was likely a very regular, simple shape. He thought it was a puzzle he could solve. So he transferred to work under the founding father of X-Ray crystallography, Sir Lawrence Bragg, to learn more.

It was here at Cambridge University where he met 34-year-old physicist Francis Crick. He was immediately drawn to Crick due to his intelligence. Not to mention that he shared the same belief about the importance of DN. So the two quickly started working together to figure out what exactly the molecule did.

Lesson 2: Things gets tough as they competed with others that were also studying DNA.

But they soon found out they weren't the only ones interested in DNA. Maurice Wilkins, the scientist whose conference speech inspired Watson to look at DNA in the first place, was hard at work looking at the molecule too.

Wilkins was pretty new at X-ray crystallography. He had the help of his assistant Rosalind Franklin, who was good at it. Franklin considered Wilkins more of a colleague than a boss. She also had her own interest in looking at DNA. Which resulted in their strained relationship.

Wilkins didn't show interest in studying DNA that made Crick frustrated at him. When he became the lead researcher on the molecule, they had to keep their distance from him.

Linus Pauling of the California Institute of Technology was a famous chemist. They believed that he was looking to win a Nobel Prize, too. He is interested in studying DNA. To the point that he asked Wilkins for a copy of his DNA photograph. However, Wilkins purposely gave him the photo.

Between these two established scientists, Watson and Crick lost hope they would discover DNA's structure first, but they didn't give up. They began to use what they knew from the competing scientists.

They used Pauling's technique of building a large 3D model, something the English community frowned on. Crock had watched Franklin make measurements with her X-rays and used this information to deduce it had a helical structure.

But when Franklin and Wilkins came to see their model, they criticized them for getting her measurements wrong. Then when they fixed the measurements and showed the researcher director Sir. Lawrence Bragg criticized their method for building models and called them childish.

Soon after, Sir Bragg shut down their research. Watson was told to go back to studying viruses. While Crick was told, he'd probably need to find a job somewhere else.

Lesson 3: Watson and Crick persevered through difficulties, and their breakthroughs in genetics won them a Nobel Prize.

Surprisingly, even these roadblocks didn't stop the determined scientists. During a year-long break from DNA study, they worked at Cambridge that made Sir Bragg happy enough to keep them.

When Watson and Crick came across a manuscript from Linus Pauling that showed his attempt at describing DNA's structure, they rekindled their intense interest in it. Most importantly, they noticed that Paulings had made a big, college-level mistake in his research.

When they presented Sir Bragg with their manuscript findings, he decided he would let them study it again. They all knew that Pauling's mistake was going to be a huge embarrassment. If they didn't act quickly, he would fix it and take all of the glory.

Interestingly, Watson followed a hunch that he believed DNA would have two helices. This is because things in nature usually come in twos. Like others had done, he built it out of the 4 amino acid bases. However, the chemistry book he copied the molecules' structures from had an error. Lucky for them, world-renowned chemist Jerry Donohue was there to fix the error that could have devastated their work.

As he connected the amino acids across each strand, he found that they came together at an even length, creating something like a twisting ladder. Mesmerized by it, they finally understood how this structure could help pass on genetic information flawlessly.

Remarkably, Wilkins, Franklin, and Paulings didn't show resentment at not reaching the Discovery first. Wilkin's model was finished only two days later. **Watson and Crick received the Noble Prize. They also made sure to acknowledge the contributions of the scientists who helped them along the way.**

The Double Helix Review

Honestly, I thought this would be more about DNA science instead of history, but it was still pretty interesting. *The Double Helix* taught me a lot of things I had no idea about, which I liked. I do still wish there was more science in it, though.

Who would I recommend The Double Helix summary to?

The 18-year-old that's considering studying genetics in college, the 61-year-old who loves to read interesting historical accounts of scientific breakthroughs, and anyone that's curious to know how we got to understand DNA so well.