The Upright Thinkers: The Human Journey from Living in Trees to Understanding the Cosmos

The Upright Thinkers (for short) is the book about how science and scientific methods was like back when our ancestors were still throwing rock to hunt animal and how it has evolved to modern day where we can launch object to space while retaining the rocket boosters. It was written by Leonard Mlodinow, a theoretical physicist who is also an author of many more scientific books. The objective of the books is to give an insight of what people used to think of things around them before, how the discovery of scientific methods changed them and how much our lives have changed since then.

I am not sure if this works support or rebut any other authors or scientists but this books was intended to give credits to the past scientists who made our present to be what it is today. The books mentioned of people, from the ancient great thinkers like Aristotle and Pythagoras, to revolutionists like Isaac Newton, Max Planck and Heisenberg. The book describe how these people's ideas and theories changes the view of the world around them for the better and how they came to improve their quality of lives.

From my point of view, and my reading habits, I found that the book is quite fun and engaging to read, the author has a good sense of humor to lighten up the atmosphere when things get too 'wall-of-texts'-ey because my main gripe of the book is that it is far too long. The exciting parts are too far apart to keep up the momentum of excitement. So it would be advisable to read a bit at a time rather than going full marathon to finish it in one stretch.

The writing is clear enough to understand without thinking too deep about it and the word that the author used is not too technical to understand, even people from outside the scientific field can understand it without much difficulties.

To summarize the contents of the book, the author told us that people didn't just come together and just start to do scientific things. It was the accumulation of knowledge that started when people came to live together in a group. That way, they can share knowledge and create a pool of information to work with. And when they came to be together, they can stop worrying about everything they needed to do to survive and assign roles to each other. When they became proficient in the roles they are given, they go on to teach them to the kids. The later major breakthrough was when people started to question the right things, a Greece philosopher Thales of Miletus started to asked that was it really god who gave us disaster for doing bad things? While his theory that the earth is floating on water and earthquakes is the result of water ripple is not entirely true, his way of thinking pave the way for rational thinking rather than theological thinking.

The birth of physics started when Aristotle theory of natural and violent change. Things that are changing by their natural behavior are called natural changes while things that interrupt them are violent changes, which are caused by something that he simply called 'force'. Galileo Galilei also expanded upon asking question and observing to experimenting and prediction. His famous experiment is the Leaning Tower of Piza experiment proving that weight had nothing to do with the speed of the fall. He would also be able to explain how fast a ball would free fall by first trying to roll it down a different angle of slope and then comparing and predicting the result. Isaac Newton would later go on to provide a theory of gravity that further explain Galileo's experiment. Newton worked tirelessly for weeks and used his own body on many experiments as a dedication to his research.

To change things up a bit, chemistry was once the work of artisans and craftsmen, not scientist. This job date back to people who mummified corpse. They learned that by mixing things together, they can create new things altogether. This was revolutionize when a Swiss alchemist Paracelsus

who created a systemic procedure of alchemy. This was the foundation of classical and modern chemistry that tried to understand the atom.

For biology, people once thought that mice was created by piling dirty clothes with grains of rice and water. They never really know about animals much until Charles Darwin's book of evolution arrived. Darwin observed many species and recorded their behavior and characteristics, concluding that the species that are able to adapt will survive and thrive.

With many discoveries being made, people once thought that we have arrived at the pinnacle of technologies and there's no more secret to be unlocked. This once change when people started to look at the invisible, the atom. It was hard to do observation (since it's invisible, after all) and even harder to do calculation and experiment on them. This was when Heisenberg came to the rescue. His Quantum Theory relies on factors that are measureable like radiation and frequencies while his other invention, the spectral data, give us an array of data that describe all possible color of theoretical light that can be emitted by the invisible atom.

Overall I think this book is a good read for people who wanted a good way to pass time and people who wanted to know how we have come this far in the discovery of technology. The contents are fun to read albeit being a bit long, which is a negative for me but might be a positive for some other people. It will be quite a ride to enjoy the author's humor and seriousness. Learning about the past and having fun at the same time. My recommendation is to read some chapters at a time, don't go full marathon on it since it will be cramming all the good stuff together and it will be less memorable. Let it sink in for a few days or hours and coming back to read it is better than one long stretch. I would give this book a solid 9 out of 10.