

5504641324

Pornteera Tungtrakul

Leonardo da Vinci

Word Counts: 1,106 words

Leonardo da Vinci is a well known Italian man during the Renaissance. He was not only famous for an artist but actually he was also versatile in every aspect of skills such as sculpture, architecture, anatomy, mathematics, science, botany, astronomy, writing, philosophy, inventing and engineering such that some people called him the universal man.¹ Leonardo was also perhaps considered to be the first modern man because of the uniqueness, creativity and imagination of his works which were different from his counterparts of that time. No one had ever come across any such ideas and it took many years later for the next generation to accomplish what Leonardo had already done hundreds years ago.² His knowledge can be obtained from his notebooks which contain most of his lifetime works, including his paintings, drawings, inventions, theories and philosophies.³ The most interesting thing about Leonardo da Vinci is the sketches about engineering inventions in his notebooks because it reflects that his ideas were so far ahead of his time that it took hundred years before the scientists realized that his works and inventions lead us to the modern society and play an important role in our world.

Leonardo's flying machine is one of the inventions in his notebooks which came from the combination of his passion in birds and science. He attempted to teach men to fly by attaching wings to human which would coordinate with the arms and

¹ Lewis, Lorna. *Leonardo the inventor*. 1971. p.1, 5.

² Friedenthal, Richard. *Leonardo da vinci, a pictorial biography*. 1959. p.107..

³ Boussel, Patrice. *Leonardo da vinci*. 1992. p.185.

consider the legs of human as tails of the bird.⁴ To achieve this flying machine, he looked all around the subjects, including observing the birds and considering flying from scientific of point of view. His method was different from many of the others who failed in their flying projects because they did not have empirical observations and only relied on imaginations and ambitions which is not enough for Leonardo. Unfortunately, he never had a chance to see his success because he was called away from Florence so the practical test has never been tested.⁵ Therefore, the name “bird man” did not belong to Leonardo, but to Clem Sohn who actually flew in the air using wings almost five hundred years after Leonardo experiment.⁶ However, Leonardo’s idea about flying was right, even though it took many centuries for the nineteenth century scientists to discover the knowledge of flying machine in the air, Leonardo, the fifteenth century man, believed all the way long that his machine was the right one. Eventually his effort was not wasted. His flying machine was the major part of the aeroplanes history.

Another engineering invention in Leonardo da Vinci’s notebooks is the armored tank which he invented and sketched in his notebook during the war between France and Italy commissioned by Duke of Milan, Ludovico Sforza. However, Leonardo da Vinci had an intention to invent this armored tank non-moveable because he was actually a peaceful man who never wanted to be the part of the war.⁷ Despite the fact that this armored car cannot move, it was designed to move in the opposite direction, the forward direction was impossible to happen, and it was driven by the eight men

⁴ Lewis, Lorna. *Leonardo the inventor*. 1971. p.107,111.

⁵ Lewis, Lorna. *Leonardo the inventor*. 1971. p.114.

⁶ Lewis, Lorna. *Leonardo the inventor*. 1971. p.115.

⁷ Friedenthal, Richard. *Leonardo da vinci, a pictorial biography*. 1959. p.32.

who attached themselves with turtle wheels attached to the driving wheels.⁸ Leonardo da Vinci's safe, unstoppable and unbreakable military car was in a turtle shape in order to prevent the harm from the gunfire of the enemies. The firing weapons were also built inside for the soldiers uses.⁹ His famous armored car have an impact to the world because it is considered to be the model of the modern military armored tanks that were used in many wars after that, including in World War I after several centuries later.¹⁰ Also this armored tank is the example of his imaginative talented ideas which were far beyond the standard of the other inventers in fifteenth centuries.

Another interesting engineering invention of Leonardo da Vinci is the sketches portraying the knight robot wearing Italian-German armor named Schema.¹¹ He realized that he could build the imitations of human so he invented this robot to exhibit its operating system at the parties of the Duke of Milan, Ludovico Sforz. Leonardo da Vinci used his knowledge in anatomy to help define this robot so it was able to do many of human's movements like sit, stand, open and close its mouth, lift its arms, move head side-to-side, However it still needed to be guided correctly in order to do a specific task.¹² The most difficult thing to replicate correctly from human are the joint and muscles but Leonardo da Vinci still imitated them precisely. The working structures of the robot consists of two systems which are the four-factor system that controlled its hand, elbows, shoulders and is also the locations of the

⁸ InventHelp website. "What is Leonardo's armored car invention?" *Leonardo da vinci inventions*. 1 Feb. 2013. <<http://www.da-vinci-inventions.com/armoured-car.aspx>>

⁹ Wright, Patrick. "Tank: life and times of a wonder weapon." *The BBC*. 1 Feb. 2013. <http://www.bbc.co.uk/history/worldwars/wwone/gallery_tank_01.shtml>

¹⁰ InventHelp website. "What is Leonardo's armored car invention?" *Leonardo da vinci inventions*. 1 Feb. 2013. <<http://www.da-vinci-inventions.com/armoured-car.aspx>>

¹¹ Teri, Wynn. "The legacy of Leonardo da vinci's incredible robot." *Environmental graffiti*. 3 February 2013. <<http://www.environmentalgraffiti.com/environmental-news/news-would-leonardo-da-vincis-robot-have-been-environmental-green-demon>>

¹² Teri, Wynn. "The legacy of Leonardo da vinci's incredible robot." *Environmental graffiti*. 3 February 2013. <<http://www.environmentalgraffiti.com/environmental-news/news-would-leonardo-da-vincis-robot-have-been-environmental-green-demon>>

power resources and the other system is the tri-factor system that controlled its knees, ankles and hips.¹³ Unfortunately, the model of this robot does not exist until today because it was probably lost or destroyed. Leonardo's robot is the inspiration for NASA to build the modern robot called Anthrobots, using Leonardo's robot as the basis. The Anthrobots from Leonardo's idea is used to work in the International space station and assist spacemen work in Mars. The Schema is recorded as the first robot in the world since 1495.¹⁴ The innovation and development of the present robots would not be as rapid without Leonardo's robots. Imagine that how many lives have to be risked in the space to accomplish tasks that is now undertaken by robots. The knowledge gained from the studies of Leonardo's robot help scientists create the robot that can be used instead of human being.

Finally, from the examples of the sketches, engineering inventions from Leonardo's notebooks such as flying machine, armored tank and robots show that his ability, ambitious, talented and ideas are far ahead of many others during his time and even far better than everybody's expectations. His ideas were so different and reasonable that they can be considered as the greatest of all time. Scientists in the present still use his sketches as the model of today technology and inventions. Moreover, some of his ideas took many years for modern scientists to discover and understand but Leonardo had known that his ideas were right long time ago. Without his great inventions, the world would not have been developed this far. His works affect the society tremendously. Without his flying machine, there would not have be

¹³ Leonardo da vinci biography's website contributor. "Leonardo da Vinci robotic expertise-and his robots" *Leonardo da vinci biography*. 3 February 2013. <<http://www.leonardo-da-vinci-biography.com/da-vinci-robotic.html>>

¹⁴ Leonardo da vinci biography's website contributor. "Leonardo da Vinci robotic expertise-and his robots" *Leonardo da vinci biography*. 3 February 2013. <<http://www.leonardo-da-vinci-biography.com/da-vinci-robotic.html>>

huge airplanes flying in the sky today. Without his armored car, there would have been more death during the war. Without his robot invention, there would have been many unsuccessful important works because they are risky or impossible for human to do.