

Leonardo da Vinci

Leonardo da Vinci was born on 15 April 1452, the illegitimate son of a young peasant girl by the name of Caterina and Ser Piero da Vinci, a well-renowned Florentine notary. Leonardo lived in Italy in the town of Vinci until his late teens and received a simple education in reading and writing as well as some training in mathematics and engineering. Although he was socially excluded by birthright from almost every profession and prohibited from attending any formal university, Leonardo went on to become a celebrated scientist, artist, and engineer. His research in mathematics, mechanics, cosmology, hydrodynamics, biology, botany, geology, geography, and anatomy signify his ingenious skills as a polymath. Among his numerous contributions, Leonardo is most famous for his artwork, anatomical drawings, and imaginative mechanical structures that influenced his natural philosophy and served to frame his early embryological studies. His embryological annotations and drawings of the fetus represent his groundbreaking curiosity and scientific method in depicting the human form in utmost detail.

In 1472 Leonardo's father arranged for him to study at the Compagnia di San Luca in Florence, a painter's guild, where he apprenticed and eventually collaborated with the well known Florentine artist and sculptor del Verrocchio for the next five years. A decade later, Leonardo moved to Milan where he spent the first two years of his residence raising his profile as a painter under the employment of Ludovico Sforza, the Duke of Milan. When Milan was struck by the plague in 1629 Leonardo's skills in engineering were acknowledged with the adoption of his plan for improving the city's unsanitary conditions by the use of a street cleaning machine. This recognition led to an important connection with Donato di Angelo, with whom Leonardo collaborated on later projects in architecture, the profession which Leonardo considered to be the most noble. When the Duke was captured by the French in 1499, Leonardo left for Venice, and eventually returned to Florence where he studied anatomy and completed one of his most famous paintings, the Mona Lisa.

In 1506 Leonardo returned to Milan where his anatomical studies were greatly influenced by his friendship with Marcantonio della Torre, a professor of anatomy in the universities of Padua and Pavia. Prior to Leonardo's experiments, anatomy was limited mainly to the dissection of animals and an emphasis was placed on learning from existing text books rather than first-hand fieldwork. Leonardo first ventured into anatomy with the purpose of depicting the human body more accurately in his artwork. An artist's main concern was replicating the external characteristics of their subjects while the anatomist was focused on evaluating the internal workings of the body. Leonardo married these two observational techniques to create a dually comprehensive interpretation of the subject.

It was not easy finding material or permission to dissect nor was it anything less than an unpleasant process without the discovery of preservatives, yet Leonardo managed to dissect over thirty bodies throughout his investigations. His studies of embryology were focused during 1510-1512 when evidence indicates he was able to dissect one human fetus. Leonardo was the first in history to correctly portray the fetus in its proper position within the womb, prompting later scientists to incorporate firsthand examination into their studies rather than relying on traditionally accepted knowledge.

In 1513 Leonardo left Milan and took residence in Rome to work for Pope Leo X. He continued his anatomical studies at the hospital Ospedale di Santo Spirito until he was met with contempt from a German optical engineer, Giovanni degli Specchi. Specchi harbored jealousy because of Leonardo's influence on their patron, Giuliano de'Medici, who had allotted Leonardo a larger stipend than Specchi. His envy prompted him to spread rumors suggesting that Leonardo was guilty of sacrilege to the bodies he was dissecting, and it was not long until insinuations of necromancy ended any

tolerance for Leonardo's experiments. This resulted in Leonardo being banned from the hospital and subsequently ended his studies in human anatomy.

Although his anatomical studies came to a halt, Leonardo continued to be admired and recognized for his exceptional ingenuity and highly prized artwork. In 1516 he was invited by King Francis I to live in Amboise at the Castle of Cloux, where Leonardo resided until his death 2 May 1519. Leonardo's will, written 23 April 1519, bequeathed all of Leonardo's priceless notebooks and intellectual legacies to Francesco Melzi, his most entrusted companion. Despite Melzi's intentions to organize and compile Leonardo's life work, the task proved too daunting for him even with the employment of two full-time scribes. Upon Melzi's death in 1570 his son Orazio inherited Leonardo's notebooks but in his disinterest he sold off and dispersed the pages of Leonardo's life work to numerous sources. Many of the excerpts ended up in the hands of nobles, libraries, and treasure hunters, and a great many were understandably lost.

Sources

1. Allen, Garland E. "Leonardo da Vinci." *Dictionary of Scientific Biography* 8: 192-244.
2. Hart, Ivor. *The World of Leonardo da Vinci: Man of Science, Engineer, and Dreamer of Flight*. New York: The Viking Press, Inc., 1962.
3. O'Malley, Charles Donald, and John Bertrand de Cusance Morant Saunders. *Leonardo da Vinci on the Human Body*. New York: Henry Shuman, 1952.
4. White, Michael. *Leonardo: The First Scientist*. Great Britain: Little, Brown, and Company, 2000.