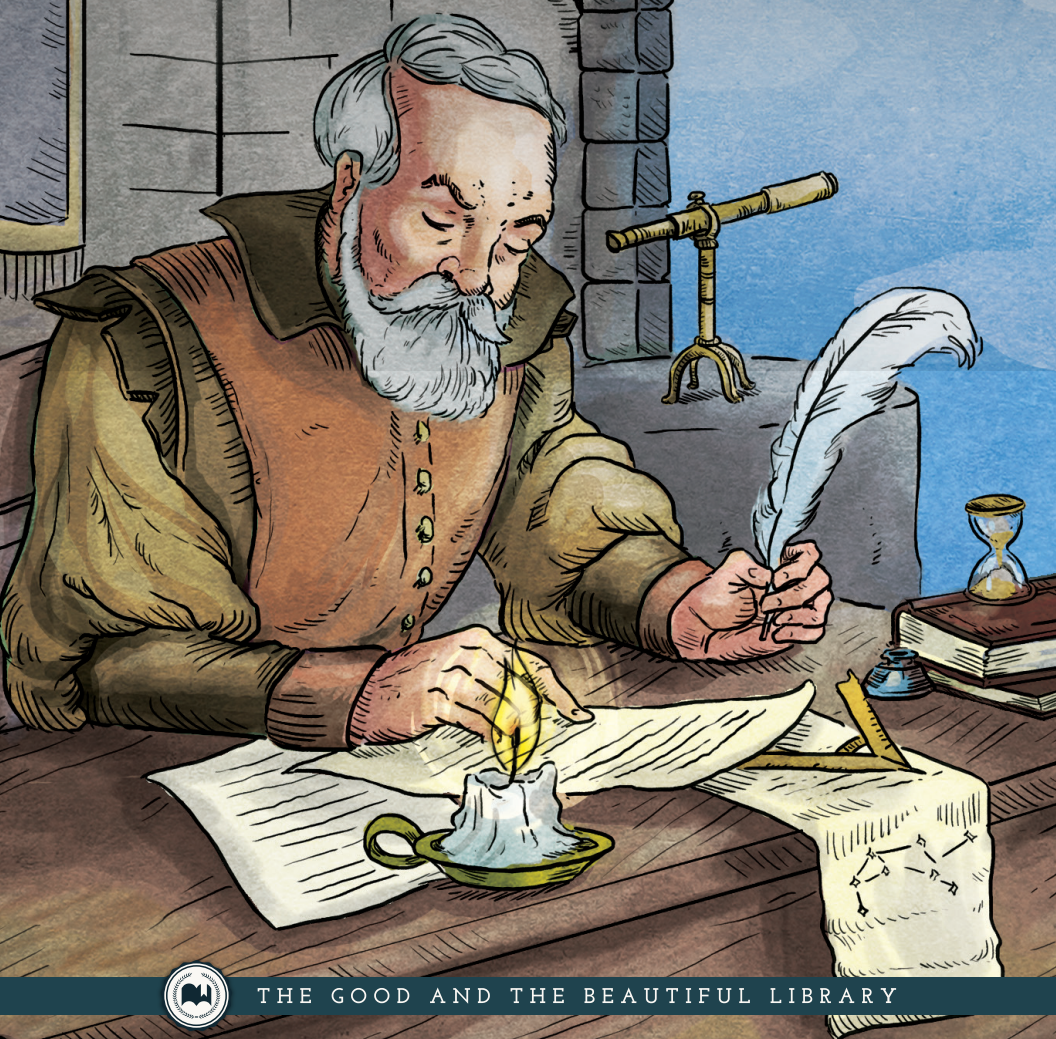


GALILEO



THE GOOD AND THE BEAUTIFUL LIBRARY

Rebecca B. Marcus

GALILEO



Galileo Galilei

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The Great Awakening

AT THE BEGINNING OF THE fifteenth century, the Western world, like a sleeping giant, had just awakened. It yawned, stretched itself, and began to look around at the civilization which met its eyes.

For many hundreds of years, Europe had been living in that period of ignorance and superstition known as the Dark Ages. Few people could read and write. Even the wealthiest lords and ladies seldom took the trouble to learn but depended upon their scribes to write letters for them. Those of the poorer classes, who might have wanted to know what was in books, rarely had the chance to find out. The only schools were in the monasteries where monks lived and worked, but only a very small number could attend these.

Books were for the select few. They were handwritten with pointed goose quills and ink on expensive parchment, each one taking months to complete. Imagine what one of them must have cost! And no wonder not very many were written!

Superstition lurked everywhere in people's minds. Witches could put an evil sign on a person; a black cat

was a sign of bad fortune. Someone would die if another person far away stuck pins into an image of the victim. Many people wore charms against disease. If they fell ill in spite of the charm, magic words and spells were often tried as a cure. Certain crops had to be planted in the dark of the moon or in the full moon. These were only some of the many superstitious beliefs strongly held throughout Europe.

People were afraid of strangers, afraid of new ideas, afraid of anything different or not understood. If a person thought for himself or questioned some of these old beliefs, he did not dare voice his doubts because he might be punished or even put to death.

Scholars were so busy thinking and arguing about the next world after death, they had no time left for thinking much about the one they lived in. They would even spend days arguing about how many angels could stand on the point of a pin!

Now, at the start of the 1400s, so many new ideas were blossoming forth as people began to examine the world around them that it seemed as if knowledge were being born again. Indeed, the period from the 1400s to the 1700s has been called the *Renaissance*, a French word meaning rebirth.

Europe indeed was ripe for change, and the Crusades helped prepare the ground. In 1095, the pope called for the first of these holy wars against Muslims. The Crusaders were to recapture the city of Jerusalem from them. Many thousands, fired by religious zeal, “carried the Cross”—became Crusaders—and began marching to the East. Nobles, peasants, craftsmen, merchants, and even women and children joined the march.

For two hundred years, Crusaders moved across Europe

into Turkey and the Holy Land. They failed to capture Jerusalem, but they won another war—the war against darkness and ignorance. What they saw opened their eyes to different ways of life, and they were eager to introduce some of these new ways to replace the old ones.

The great Italian cities were the first to awaken. This was not an accident, for they were the main centers of trade. Florence, Genoa, and Venice lay in the path of the trade routes from the East. Ships and caravans from China and India brought their eagerly sought goods into these cities, where they would be sent on to the rest of Europe.

Small wonder, then, that as these strange cargoes were unloaded, people began to ask questions about the lands that produced them. Merchants returning from these lands told mesmerizing tales of beautiful, clean cities, richly dressed men and women, great works of art, and new foods. The Crusaders had started an interest in different things; other travelers fed that interest.

In the minds of many people, distrust of new ideas was giving way to a curiosity about what was still unknown. They were ready for new inventions.

The first great invention of the Renaissance was the printing press, about the year 1450, in Germany. Now if a scholar or scientist wrote a book, it no longer had to be written out word by word, one book at a time, taking months to complete. Many copies could be printed in one day. Books became cheaper and less difficult to get, and new ideas spread more easily.

Wealthy princes in the Italian cities vied with each other to see who could assemble the finest works of art and who could surround himself with the greatest poets, artists, and scientists. It became fashionable to make a

handsome allowance to these creative people so that they would dedicate their works to their patron. A patron was generally a wealthy man who supported an artist so that the artist could devote full time to his work. Among the wealthiest, most generous patrons were the princes of Florence.

There were, of course, many who feared the new ways. What had been good enough for their fathers, they argued, was good enough for them. If ideas and theories had lasted for so long, they must be correct. In the universities and monasteries, scholars studied, almost without change, the scientific notions first taught by the Greek philosopher Aristotle, over seventeen hundred years earlier. His theories were considered the accepted truth and were not to be questioned.



The first mighty blow against Aristotle's science was destined to be dealt by Galileo Galilei, born in Pisa, Italy, not far from Florence, on February 15, 1564.

Vincenzo and Giulia Galilei named their firstborn Galileo, after a famous ancestor who was still remembered in Florence as a great doctor. Perhaps in doing so, they hoped their son would follow his example and become a great physician who would bring fame and fortune once more to his family.

For the Galilei family was of the nobility—at one time wealthy but now become poor. For all his accomplishments as a lute player and composer, Vincenzo could not make a

*Florence*

living from music. And though he was a skilled mathematician, nobody at that time could see enough use for mathematics to pay him enough to support him and his family. Even the great University of Pisa did not have a single professor of mathematics among its teachers!

In despair, shortly after Galileo's birth, Vincenzo moved his family to nearby Florence. There he set up shop as a wool merchant.

The city of Florence was alive with fine artists, fine musicians, and talented writers. Learning of a high quality was in the very air. But Vincenzo could spare little time for any of it. He was tied to his wool shop. He was determined, however, that his son should profit from this environment.

Perhaps if Galileo found a life's work that would make him wealthy, he might even set his father free from his hated wool shop.

With this in mind, Vincenzo began early in the boy's life to talk of sending him to the University of Pisa to study medicine. But with his own bitter example constantly before him, he kept from his son any opportunity to study mathematics.

But what of Galileo himself? He was a stocky red-haired youth, alive with curiosity. It was not enough for him to be told a fact; he wanted to investigate it and to try to prove it for himself. Galileo wanted to know the "why" of things. His mind and his nimble fingers were always busy. When he was not playing his lute or painting pictures, he was inventing clever toy machines for the younger children in his family.

In all of these activities, he showed great ability. With practice, he might become a great musician. With training, he might become an artist. In time, he might even become an inventor. His father was bewildered by his son's many talents. Into what kind of life's work should he steer Galileo?

Vincenzo Galilei thought it over carefully. One of the most honored and well-paying professions was medicine. He would keep his first desire to have his son become a doctor.

To prepare for the University of Pisa, as well as to keep his mind so busy that he would have no time for "foolish things" like painting and toy making, Galileo was sent to the monastery school at Vallombrosa. So taken up was he with his studies that he pushed aside all other thoughts. Galileo's greatest satisfaction now was not in using his hands, but his mind.

Eagerly he studied philosophy and religion at

Vallombrosa. The restlessness he had often felt left him. Galileo felt at peace with himself and the world.

What better life could he find, Galileo thought, than that of a monk? Deep religious feelings stirred within him. Galileo determined to devote his life to the church.

Vincenzo was very disturbed at the thought of his son becoming a monk. Perhaps he understood Galileo well enough to suspect that his searching mind could never be happy under the discipline of life in a monastery. Perhaps he also feared that the family fortunes could not be restored if his oldest and most capable son devoted himself to a life of poverty.

Whatever his real reason might have been, Vincenzo found an excuse to bring Galileo home from Vallombrosa. An eye disease had made it necessary for the lad to keep away from books for a while, so back he came to Florence to rest and recover his health.

Vincenzo reasoned with the boy. Once again he reminded him of his great ancestor, the physician, and of the fame and fortune that awaited a good doctor. Galileo listened and agreed to try to study medicine, though he did not have much liking for it.

Before he was eighteen years old, the University of Pisa accepted Galileo as a medical student. Little did he dream that, in reality, his fame would rest elsewhere than in the medical profession.



GALILEO

Born in 1564 in Italy, Galileo Galilei spent his life asking “Why?” It was not enough for him to be told a fact—he had to investigate it and prove it for himself. Would Galileo become a great musician? An inventor? A mathematician? A teacher? An author? Actually, he became all of these! More than anything else, he was a dedicated scientist and is now known as the father of modern experimental science. Even though some individuals were slow to accept Galileo and his research, he never gave up “finding the truth and proclaiming it.”

