

Denis Papin Biography

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Biography

Denis Papin was an early pioneer in the study of steam pressure. In fact, Papin is credited with making the first real developments with steam since the time of Hero of Alexandria 1,500 years earlier.

Papin was born in France on August 22, 1647. He studied medicine, mathematics, and physics before assisting Christiaan Huygens and Robert Boyle with their work on air pumps. Papin's best-known and most influential invention was his 1679 steam "digester," a direct forerunner of modern pressure cookers and hospital steam sterilizers.

Papin evidently realized the connection between steam pressure and the possibility of using it to move objects. His experiments showed that when small amounts of water were heated at one end of a container, the resulting steam would move an object at the other end. In 1690 he developed an atmospheric engine using this principle. He boiled water in a three-inch (7.6 cm) diameter vertical tube. The tube was sealed at one end with a movable piston. The piston rose as the water turned to steam. As the steam cooled and condensed, atmospheric pressure forced the piston back to its original position. Papin tried to use this concept to build a pump for removing water from mines and joined efforts with the English engineer Thomas Savery. He studied Savery's water pump and incorporated a piston, instead of Savery's vacuum chamber, to provide suction.

In 1707 Papin again built upon Savery's work to create a boat propelled by side paddles. While Savery proposed to power his boat with human muscle, Papin propelled his with paddles turned by a ratchet mechanism that was powered by steam. Unfortunately, the vessel was destroyed by river boatmen while enroute to its demonstration on the Thames River in London, England, and Papin could not afford to build another model.

In spite of the work done by Papin and Savery, it was Thomas Newcomen who actually used their ideas to create the first successful steam engine in 1712, the same year Papin died in poverty and obscurity.