Robert Boyle’s Scientific Works Essay, Research Paper

Robert Boyle was born on January 25, 1627. He was born in Lismore Castle County Cork, Ireland. (Encyclopedia p. 469) His father was the Earl of Cork. His mother died when he was very young. (Sootin pp. 3-6) Robert was the seventh son of fourteen children and was his father’s favorite. He was very different from his brothers. Instead of playing like most of the children, Robert preferred studying and reading. The father and founder of modern chemistry had been born. (Sootin p.8) In this paper will be discussed Robert Boyle’s childhood, his scientific works, and his death.

Boyle grew up imitating and making fun of people who studdered, in fact, he did it so much, he also developed the habit of studdering. This habit caused him to keep to himself much of the time. The rest of his life was plagued by this affliction. Without this defect, he may have never concentrated enough to accomplish what he did. It was bad at first, however it turned out for the best.(Sootin p.9)

Robert Boyle went through school like other normal boys at that time. Then it came time to go to college in which he attended Eton College. Eton college was located in England.

(Sootin p.10)

After graduating college, Boyle decided to start his work at Oxford. At the age of twenty-seven, he finally became what he wanted to be for so long, an experimental scientist.(Sootin pp.37-38) He continued at Oxford and received an Honored M.D., and later was accepted to be a member of the Royal Society, a big scientific group. It was a great honor to be a part of that scientific group.(Salzberg p.161)

Arguably, Robert Boyle is most famous for Boyle’s Law. Boyles’s Law, in formula form, is Pressure x volume = a constant. Boyle’s Law in word form is, “At constant temperature for given mass of gas, volume varies inversely with pressure” ( Biddle p.164).

Robert performed many experiments throughout his career. One of the experiments was that Boyle wanted to know was if when wood burned, was the smoke and ash already there. He found no proof that ash, smoke, or flame were there before the wood was burned.

(Salzberg p. 162)

Boyle also did a lot of work with elements and figuring what things were elements and what things were not elements. He concluded that water was not an element. He also rejected fire as an element. (Salzberg p.164) He really did not know what an element was, but he did know what it was not. Robert once said, “I must not look upon anybody as a true principle or element which is not perfectly homogeneous but is further resolvable into any number of distinct substances.” Boyle was not even sure if gold was an element, but he was sure that mercury was a compound and not an element. He was also sure that sulfur was just a compound and not an element. Robert never considered a chemical to be an element. (Salzberg pp.169-170)

He worked a long time on trying to change one metal to another metal. Another experiment he did was to solve the problem of why metal would gain weight when placed in fire. He worked on this for a while. The answer he came up with was that the metal was absorbing the fire atoms causing their weight to increase. (Salzberg p.165)

One problem with Boyle’s experiments was that he never considered air to be involved as a gas, but he knew that air was corpuscular in nature. In the calcination experiment, he boiled water in a pot until it was gone then added more water. He did this several times. Afterwards, there was a substance at the bottom of the pot. Even though he did not consider air a gas, he published a book, The Springiness of Air and its Effects.(Salzberg p.165)

Boyle also believed a lot of other scientific things, many of them contradicting well known scientists beliefs. He believed that prime matter was in the form of various corpuscles with own shape and size. Prima natural is another name for this theory. (Salzberg p.168)

Boyle’s favorite science was the science of all the different materials in the world which was chemistry. (Freeman p.77) Some things eluded him however because he could not see them. Carbon dioxide was one of those things. (Salzberg p.171)

In terms of matter, Boyle believed matter could not be created or destroyed. He could not accept the idea of mass however. Robert could not follow the course of reactions by measuring masses of products and reactants, for without adding masses, there is no way to account for all reactions or to arrive at formulas of chemical compounds. (Salzberg p.171)

Robert was also credited with creation of the first match. (Website p.1) He also studied a lot in effects of a vacuum. He created a vacuum know as the Boylenium Vacuum.

(Unknown p.469)

His other studies of the air included elasticity of the air, combustion in the air, effects of sound on the air, and survival of animals in the air. Robert also used an example to prove Boyle’s law which was a light body was put in open air and allowed to fall. Then the same light body was put into a vacuum and allowed to fall. The result was the same. (Unknown p.470)

Robert did a lot of work in corpuscular philosophy. Corpuscular philosophy was, in formula form, n = function technically employed. He was saying that common chemistry subjects when heated, were decomposed, and failed to yield requisite number of elements or principles. (Unknown p.470)

Some other notable contributions made by Robert were experimental chemistry of calcination of metal, combustion of acids and bases, and an explanation of terms of matter motion. He also had a pioneering study of phosphorus which he discovered all properties for the next two- hundred years. Even after all of this, Boyle still kept a deep religious commitment throughout his life (Unknown p. 470).

At one point of Boyle’s career, many questions came up, or should it be said, many people questioned each other. Maria Boas Hall, Parting, Crum Brown, T.L. Davis, and of course Robert Boyle were those people. Parting followed the lead of Crum Brown. Maria Boas Hall argued that Robert Boyle had said the he did not believe there were such things as elements. T.L. Davis interpreted Robert Boyle as saying an element was a part of a compound. Robert Boyle never accepted the essence or element theory.(Salzberg P. 169-70)

Robert Boyle was also an extensive writer. He wrote on ethical and religious topics. He was also very interested in natural philosophy but was mainly kept to his first love, science and chemistry. (Salzberg p.469)

Robert Boyle worked hard to bring a revolution in man’s thinking in the seventeenth century. Without him neither chemistry nor science would be the same. All scientists owe him a debt of gratitude. (Sootin p. 2)

Robert Boyle died on December 30, 1691. However, he left behind, in his will, sermons to be preached in his words, “Proving Christian Religion notorious infidels,” also know as Boyle’s lectures. (Unknown p. 471) The greatest chemist, one of the greatest scientists, and arguably, the greatest thinker to walk this God given earth had passed away. Now we wait for other Robert Boyle’s to come up and to take charge of the science world. Will there ever be another Robert Boyle? One would be forced to say no. (Own Words)