Albert Einstein Essay, Research Paper

The Life of Albert Einstein

Albert Einstein was born on March 14, 1879, in Southern Germany. One year after his birth his fathers business failed, so the family moved to Munich, and began a new business manufacturing electrical parts. His parents Hermann and Pauline were of Jewish descent, but were very lax regarding religion. The Einstein’s sent Albert to a Catholic grade school.

Albert’s first scientific revelation came when he was five years of age, and his father showed him a pocket compass. This occurrence left a long lasting impression on Albert. Otherwise Albert was not an extraordinary learner. At the age of nine Albert was unable to speak fluently, and his grades were poor. His parents and teachers thought he might even be mildly retarded. When Albert was ten he began secondary school, at which he still failed to excel. He disliked the regiment of school, and the strictness of his teachers.

Einstein’s hunger for learning was aroused by science books and magazines. His mother passed her passion for music on to Albert. He began violin lessons at the age of six and although he was never a musical genius he carried a passion for music for the rest of his life.1

In 1894 Albert’s fathers business failed again so the family moved to Milan in order to get a fresh start. Albert’s father left him behind so that he would be able to finish school and receive a diploma. Less than a year later, Albert left school, without receiving his diploma, to be with his family in Milan. At the age of sixteen, Einstein took the entrance exam for a school that would give him a degree in electrical engineering, and failed.

Einstein attended a Swiss school to prepare to take the exam again, and found that he so much preferred the less regimented system of teaching and the Swiss democratic attitude that he relinquished his German citizenship. On his second attempt to enter the University, one year later, he passed and was admitted for a degree in science and mathematics education.2 He graduated at the age of twenty-one.

In 1893 he married a classmate from his school in Switzerland, Mileva Maric, who was Hungarian. They had two children. Upon Albert’s graduation in 1900, he found employment as a patent examiner in a patent office in Bern, and began tutoring part time. This was not a challenging job for Einstein, and allowed him plenty of time to pursue his personal pursuits. In 1905 Einstein published three papers that he submitted to the University of Bern. These papers concerned themselves with the properties of light, the theory of special relativity and Einstein famous equation E=mc2.

The first of these papers was on Brownian motion. He observed this concept by using a highly powered microscope, focused on pollen particles submerged in water. He found that the pollen particles moved in a random fashion, and the speed increased as the temperature of the water rose. He found that this happened because the pollen particles were being pushed around by the water particles. The random motion that this created would create different amounts of movement, which he statistically calculated.

His second paper explained the Photoelectric Effect. The Photoelectric Effect happens when light hits metal which makes the metal emit electrons, which in turn generate energy. This is how auto-matic opening doors are operated.

Paper number three dealt with molecules. He wrote about sugar dissolving in water. The paper explained the dilution and dissolving of sugar and also able to calculate the size of the sugar molecules. Although similar studies had been done before this was the first time that it was applied to liquid.3

Ironically on Einstein’s initial submission of this paper to the University of Bern it was rejected. Shortly thereafter, the University recanted their decision and appointed Einstein as a professor.2

He left his job at the patent office in 1909. Shortly thereafter left the University of Bern because the Emperor of Prussia, Franz Joseph, had selected Einstein to be a professor at Prague University. In Prague Einstein expanded upon his special theory of relativity in a paper called, The Influence of Gravitation on the Propagation of Light. Einstein was forced to leave Prague due to anti-Semitism within the University. By 1909 Einstein was known throughout German-speaking Europe as a leader in the field of science.

The German Emperor sent Max Planck and Walter Nerst, to offer Einstein a Professorship at Berlin University, and to become a member of the Prussian Academy of Sciences. Upon his acceptance of this offer, he and his wife Mileva parted ways. Einstein retained his Swiss citizenship while in his home country of Germany.4 He was Jewish, and a well-known pacifist, living in a country on the verge of war, therefore found himself an outcast in his own homeland. While in Berlin, Einstein lived with his Uncle and fell in love with his uncles widowed daughter, who had two children. He and Elsa married in 1919. His marriage to Elsa renewed his interest in his Jewish background.

As the end of the war neared, Einstein gained even more notoriety. The British eclipse expeditions of 1919 proved his predictions on the theory of relativity to be true. This conformation of his theory made him vastly popular.

Although he was a worldwide hero Einstein was still an outcast in Germany. He was an outspoken pacifist in Germany, a highly militant country, he was Jewish and his revolutionary discoveries were not always easily accepted. Not only did his views overthrow the previous Newtonian beliefs, but they were also difficult to comprehend. Because anti-Semitism was growing in Germany, he became a target for prejudice. The conservatives of Germany considered him a traitor for not supporting the German war effort. There were rumors that many anti-Semitic groups wanted to kill Albert Einstein.1

Consequently, in 1921 Einstein made his first visit to America. In America he received an honorary degree from Princeton University, and a multitude of requests to speak for various groups, although his primary goal was to raise funds for the Hebrew University in Jerusalem. He was widely acclaimed in America, and he continued to travel worldwide. He visited battle sites of the war, promoted education, and believed socialism was the key to world peace.3

He was awarded the Nobel Prize for Physics in 1921. It was awarded to him because of his work in the Photoelectric Effect, not for his theory of relativity. He gave money to his ex-wife to help with the children, and continued to travel and lecture. Einstein was visiting America in 1933 when Hitler came to power. Einstein was considered an enemy of the nation in Germany, and his house was broken into. He could not return to Germany and he again renounced his German citizenship. He worked on research at Princeton. Einstein was also awarded the Copley Medal of the Royal Society in 1925 and the Gold Medal of the Royal Astronomical Society in 1926.

As the Second World War developed, America began to debate whether or not to explore the possibilities of developing an atomic bomb. Einstein was not directly involved in the creation of the bomb, but his equation E=MC2 was involved in the bomb’s conception.

Einstein wanted the United States to create the atom bomb because he feared Nazi domination. Einstein’s friend Leo Szilard composed a letter to President Roosevelt, warning him of the danger of the possibility that the Nazi’s could develop it first. This letter was signed by Einstein, and contributed to the Presidents decision to fund the “Manhattan Project”. If the Germans had been first to create the bomb the outcome of the war would have been completely different.

Einstein was aware of the progress of the development of the bomb. On its completion, when it was about to be used, he wrote another letter to the President urging him not to use it. He wrote the letter on behalf of his colleges, because after the Nazis were overpowered they did not believe that the bomb should be used on the people of Hiroshima and Nagasaki. In the opinion of Einstein and his colleagues, the war had already been won, and there was no need to use the bomb. That letter was reportedly lying on the Presidents desk when he died on April 12, 1945.6

After the war Einstein continued working on the unified field theory, and his mission for world peace. He tried to get the Americans to share the concept of the atom bomb with the Soviets. Although Einstein believed in communism, he also recognized the mistakes made by Lenin and Stalin. Einstein once wrote about Lenin,

“I respect him as a man who has sacrificed himself completely, and devoted all his energy to establishing social justice. I do not consider his methods practical, but one thing is certain: men of his caliber are the guardians and restorers of the human conscience.”7

Einstein was invited to visit the Soviet Union many times, but never accepted the invitation. Although he admired their communist system, he was aware of the many problems that existed in the Soviet government. He loved America because of its freedoms, but also disliked the foreign policies America upheld. In 1947 he wrote,

“the foreign policy of the United States since the end of the war has often reminded me irresistibly of the German attitude under the Emperor William II, and I know that I am not the only one to have observed and deplored this analogy.”8

He lived his final years in solitude. His wife Elsa had died in 1936 and his first wife remained in Switzerland for her entire life. He resigned from teaching, and continued to consume himself with research at his home, in the outskirts of town near Princeton. One week before his death he composed a letter to Bertrand Russel, agreeing that his name should go on a manifesto which asked all nations to give up their nuclear weapons.1 He died on April 18, 1955 at Princeton Hospital due to an inflammation of the biliary duct. He was 76 years old at the time of his death. He contributed his remains to the Faculty of Medicine for research, and the rest of his remains were cremated without any ceremony, upon his request.1

Although Einstein is best known for his advancement in the field of Physics his goals for world peace are even more important to remember. He is one of the best known scientists of the century and was even named the person of the century, by Time Magazine.

Endnotes

The Life of Albert Einstein

1. Clark, Ronald. Einstein the Life and Times. New York, New York: Avon Books, 1971

2. French. A. P., eds. Einstein A Centenary Volume. Cambridge, Massachusetts: Harvard University Press, 1979

3. Maleki, Yashir. “Einstein’s Biography.” 1999. 11 pages. http://www.geocities.com/CapeCanaveral/Hanger/6469/biography.htm. December 1, 2000.

4. Cuny, Hillary. Albert Einstein The Man and His Theories. Paris, France: Pierre Seghers, 1962

5. Barnett, Lincon. The Universe and Dr. Einstein. New York: Harper & Brothers, 1948

6. Long, Doug. “Albert Einstein and the Atomic Bomb.” Hiroshima: Was it Necessary? Http://www.doug-long.com/einstein.htm

7. Quoted From, Cuny, Hillary. Albert Einstein The Man and His Theories. Paris, France: Pierre Seghers, 1962, Page 105.

8. Quoted From, French. A. P., eds. Einstein A Centenary Volume. Cambridge, Massachusetts: Harvard University Press, 1979, Page 209.