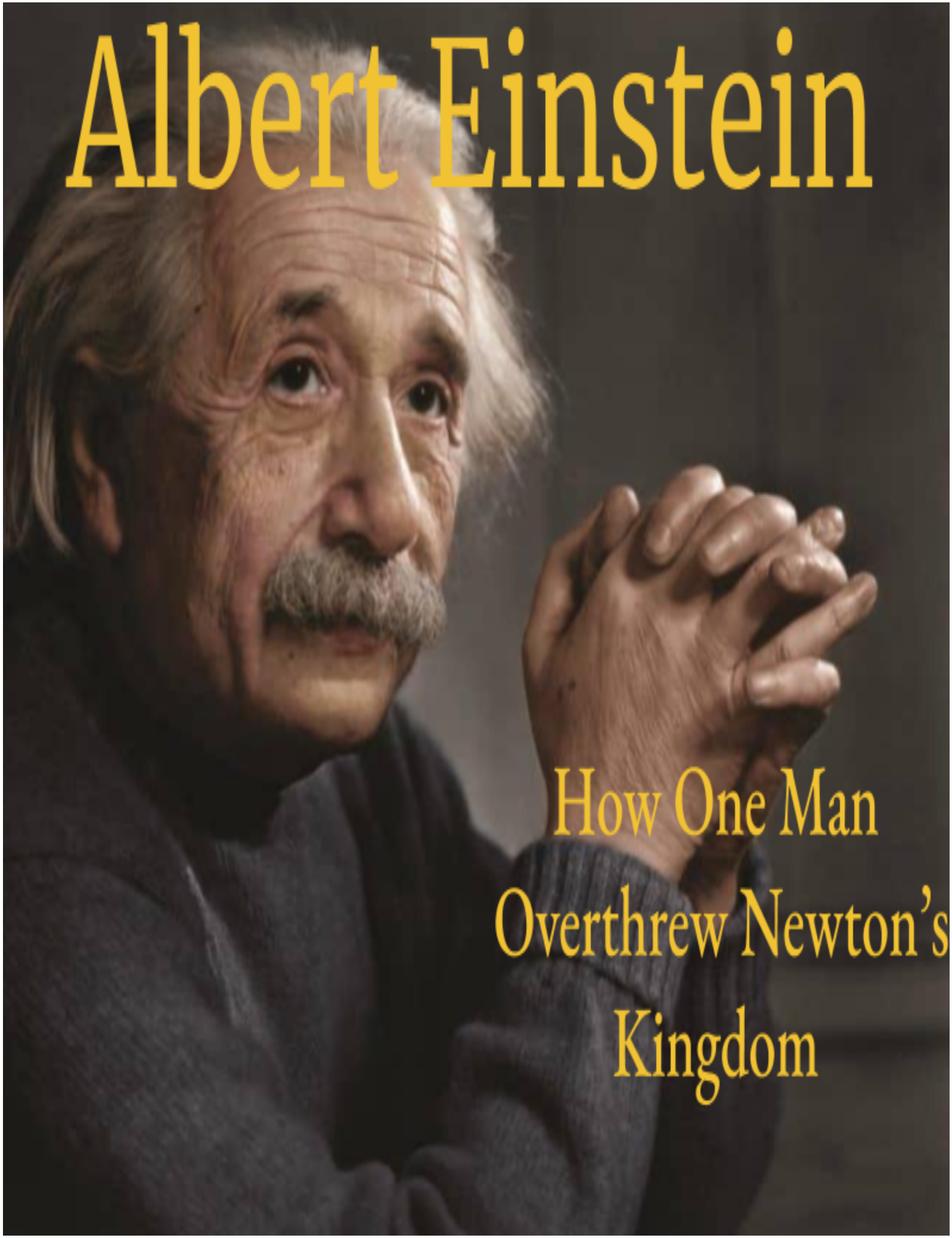
Albert Einstein



How One Man Overthrew Newton's Kingdom

Albert Einstein, creator of the most famous equation in the world, $E = mc^2$, was both a genius and an advocate for the betterment of mankind. He explained the Photoelectric Effect, while contributing work on Brownian Motion and Electrodynamics, the latter spurring his most famous work on the theory of Relativity. His work led to the discovery that matter can be converted into incredible amounts of energy, leading him to support a letter to President Roosevelt warning of German research into atomic weapons. Throughout his life he dedicated himself, in the time that he had, to the causes of Civil Rights, Zionism and the ban on the same weapon that he had helped create.

Albert Einstein was born on March 14th, 1879 at Ulm, in Würtemberg, Germany to an electrical engineer father and a violinist mother. He would become the most famous scientist in the 20th century, surpassing the fame of Scottish physicist James Clerk Maxwell[1]. More importantly, his theory of Relativity would topple the previously held beliefs that Newton's laws described all motion in the universe.

Before Einstein was born, the first cracks in Newton's Universe began to show.

Throughout Einstein's physics career he had tried to get accepted into many notable schools in Europe. In 1896 he studied at the Swiss Federal Polytechnic School in Zurich to be a professor. After failing to get recommendations from professors, he worked part time at the Swiss Patent Office from 1902 to 1909 on research that became his most well known works. This included an explanation of the paradoxical Photoelectric Effect[2], the theory of Electrodynamics and his work on Brownian Motion. Contrary to popular belief, it was his work on the Photoelectric Effect that won him the Nobel Prize in 1921, rather than his theory of Relativity.

Only a year after he began working at the patent office, he married his first-wife Mileva Maric.

While he was working at the patent office, he earned his doctorate from the University of Zurich in 1905. The culmination

[1] *Einstein would later use Maxwell's Equations relating electricity and magnetism as the mathematical backbone for his Theory of Relativity.*

[2] *Einstein's research on the Photoelectric Effect, rather than his Theory of Relativity, is what earned him the Nobel Prize in 1921, contrary to popular belief.*

Albert and his sister Maja

Einstein's Theory of Relativity has many applications, but one of them is in GPS navigation

Einstein and Leo Szilard working on a letter to President Franklin Roosevelt warning of Germany's potential of weaponizing nuclear energy

of all this work had rewarded him with professorships at the University of Berlin and a position as director of the Kaiser Wilhelm Institute of Physics in 1914. Nearly two years later he would develop his theory on gravitational fields; the evidence of which would not be observed until nearly 100 years later at the Interferometric Gravitational Observatory (LIGO) in 2015[3].

Einstein's scientific celebrity didn't limit him in his commitment to advocacy, even lending his celebrity to the causes of Civil Rights and the establishment of a Jewish state in Palestine, even though he was "a reluctant Zionist"[4]. Besides his research papers, he had written non-scientific works on philosophy and physics, such as About Zionism (1930), Why War? (1933) and Out Of My Later Years (1950). Even though he had given so much to the Zionist cause, he would turn down the offer of the second prime minister of Israel due to his ailing health and because he feared assuming "moral responsibility for the decisions of others" [3]

[3] Erickson, Kristen. "What Is a Gravitational Wave?" *NASA*, NASA, 26 Nov. 2019, spaceplace.nasa.gov/gravitational-waves/en/.

[4] Morris, Benny. "Einstein's Other Theory." *The Guardian*, Guardian News and Media, 16 Feb. 2005, www.theguardian.com/world/2005/feb/16/israel.india.