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Celebrating the September Born Scientists

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These luminaries, born in the month of September, have each illuminated the path of human progress in their own right. Their discoveries have transcended the bounds of their respective fields, shaping the world as we know it. As we reflect on their lives and legacies, we are reminded of the boundless potential of the human spirit to inquire, innovate, and inspire. Through their work, these scientists have left an enduring legacy, a testament to the power of curiosity and the relentless pursuit of knowledge.

Irene Curie, the eldest daughter of the famous scientific couple Pierre Curie and Marie Curie, was born on September 12, 1897. She was a French chemist, physicist, and politician, and the wife of scientist Frédéric Joliot Curie. Irene Curie and her husband Frederic began their research on the study of atomic nuclei in 1928. They used gamma rays to detect positrons. In 1933, Irene and her husband determined the exact mass of the first neutron. When they exposed aluminum to alpha rays, they discovered that only protons could be detected. Based on the detectable electron and positron pairs, they proposed that protons decay into neutrons and positrons. In 1934 they were able to produce radioactive nitrogen from boron, radioactive isotopes of phosphorus from aluminum, and magnesium from silicon. A temporary radioactive isotope of phosphorus is produced by bombarding the naturally stable isotope of aluminum with alpha particles (i.e. helium nuclei). This led to an increase in the use of radioactive substances in medicine, and this discovery made it possible to produce radioactive substances that could cure diseases quickly, cheaply, and in large quantities. For this groundbreaking discovery, she jointly won the Nobel Prize in Chemistry in 1935, along with Irene and her husband. In 1956, Irene Curie was admitted to the Curie Hospital in Paris with leukemia, where she died on March 17 at the age of 58. The fatal illness was probably caused by radiation from polonium-210.

Of all the Danish scientists we know, perhaps the oldest is **Ole Romer**. A contemporary of Newton, Romer was born on September 19, 1644, two years after Newton. The great sci-entist Galileo had experimented with whether the speed of light was infinite. No definite direction was found from there. Romer assumed that the speed of light, although very high, was not infinite and he took the help of a natural phenomenon to measure that high speed. The speed of light he determined from Earth-based observations of an eclipse of Io, one of Jupiter's large moons, was about two-thirds of its current value. Although this value of the speed of light is slightly lower than the actual value, this experiment was the first definitive proof that the speed of light is not infinite. Another of Romer's works has a special connec-tion with the thermometer used to measure temperature. In fact, Romer invented a tem-perature scale at about the same time as German engineer John Gabriel Fahrenheit. This scale, known as the Romer scale, had the freezing point at 7.5 degrees (Romer) and the boiling point of water at 60 degrees (Romer). This temperature scale, introduced in 1701, was the first graduated temperature scale. Newton had previously proposed a temperature scale, but it did not have graduations and did not use the word temperature.

Wilhelm Friedrich Ostwald was born on 2 September 1853 and was a Baltic German chemist and philosopher,recognized as a founder of physical chemistry alongside van 't Hoff, Arrhenius, and Nernst. He won the 1909 Nobel Prize in Chemistry for work on catalysis, chemical equilibria, and reaction rates. Ostwald began his career at the University of Dorpat and later taught at Riga Polytechnicum and Leipzig University. He mentored future Nobel Laureates and declined Albert Einstein's early job application, though he later nominated him for the Nobel Prize. Ostwald developed the Ostwald Process for manufacturing nitric acid, crucial in fertilizer and explosives production. He introduced Ostwald's Dilution Law and clarified chemical catalysis. His work on polymorphism led to Ostwald's Rule and the concept of Ostwald Ripening, explaining changes in crystal forms over time. He also contributed to the Ostwald-Freundlich equation, describing solubility's dependence on particle size. After retiring in 1906, he turned to philosophy, art, and politics, publishing over 500 scientific papers and 45 books.

Sir Mokshagundam Visvesvaraya often referred to as MV, was born 15 September 1861 and was a distinguished Indian civil engineer, administrator, and statesman. He served as the 19th Dewan of Mysore from 1912 to 1918 and is celebrated as one of India's greatest engineers. His birthday is observed as Engineer's Day in India, Sri Lanka, and Tanzania. He was knighted KCIE by the British and awarded the Bharat Ratna in 1955 by the Indian government. Visvesvaraya began his engineering career in the Bombay Presidency and later worked on major irrigation and flood protection projects, including in Hyderabad and Visakhapatnam. He invented automatic weir floodgates, first used at Khadakvasla Dam, and later implemented at the KRS Dam in Mysore. As Dewan, he modernized Mysore by establishing key industries, banks, and educational institutions, including the Mysore Iron & Steel Works and Government Engineering College (now UVCE). Even in his 90s, he advised on major infrastructure like the Mokama Bridge over the Ganga.

Asima Chatterjee was born on 23 September 1917 and was a pioneering Indian organic chemist known for her contributions to organic chemistry and phytomedicine. She was the first woman to receive a Doctorate of Science from an Indian university in 1944. Her most notable work includes research on vinca alkaloids, anti-epileptic drugs, and anti-malarial compounds derived from Indian medicinal plants. Chatterjee graduated with honors in chemistry from Scottish Church College in 1936 and earned her master's and D.Sc. from the University of Calcutta. She conducted post-doctoral research on alkaloids in the U.S. with László Zechmeister. Despite facing financial challenges and personal losses in 1967, she continued her research and developed the widely used anti-epileptic drug 'Ayush-56' from Marsilea minuta. She also led work on anti-cancer drugs and founded the chemistry department at Lady Brabourne College. Asima Chatterjee's dedication and resilience made her a trailblazer for women in Indian science.

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