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Celebrating the January Born Scientists

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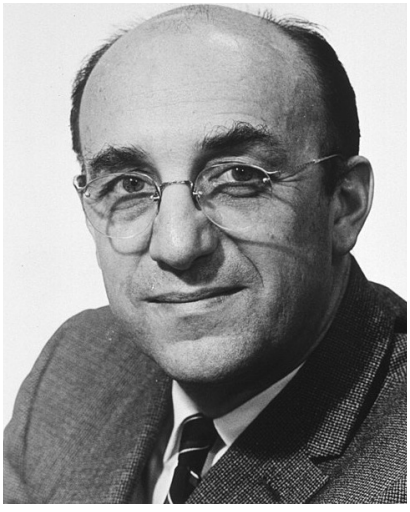
These luminaries, born in the month of January, have each illuminated the path of human progress in their own right. Their discoveries have transcended the bounds of their respective fields, shaping the world as we know it. As we reflect on their lives and legacies, we are reminded of the boundless potential 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.

Sir John Ernest Walker was born 7 January 1941 and is a British chemist best known for his groundbreaking work on ATP synthase, which earned him the 1997 Nobel Prize in Chemis-try. After early research posts at the University of Wisconsin–Madison and in France, he met Fred Sanger in 1974 at a Cambridge workshop, leading to a long-term position at the MRC Laboratory of Molecular Biology. There he worked among leading scientists, including Francis Crick. Walker initially focused on protein sequencing and helped clarify features of the modified mitochondrial genetic code. In 1978, he shifted toward applying protein chemistry to membrane proteins, characterizing the subunits of mitochondrial membrane complexes and sequencing mitochondrial DNA. His most influential work involved crystal-lographic studies of the F1-ATPase catalytic domain of ATP synthase, performed with crys-tallographer Andrew Leslie. Their 1994 structure revealed three catalytic sites in distinct conformations shaped by the asymmetric central stalk, powerfully supporting Paul Boyer's binding change mechanism and the concept of rotary catalysis. This discovery formed the basis of Walker's Nobel Prize. Since then, Walker's group has produced most crystallo-graphic structures of mitochondrial ATP synthase and trained scientists who later solved major structures of bacterial complex I, mitochondrial complex I, and vacuolar ATPases.



Roger Charles Louis Guillemin was born on January 11, 1924 and was a French-American neuroscientist who helped establish modern neuroendocrinology. He received the U.S. National Medal of Science in 1976 and shared the 1977 Nobel Prize in Physiology or Medi-cine with Andrew Schally and Rosalyn Sussman Yalow for identifying key neurohormones. In 1954, Guillemin demonstrated that pituitary cells required signals from the hypothala-mus to produce hormones, supporting the theory of hypothalamic releasing factors. He moved to Baylor College of Medicine to expand this work, and Schally joined him in 1957. Their collaboration ended after five unproductive years, and the two became fierce rivals, each processing millions of animal hypothalami—Guillemin using sheep brains, Schally using pigs—to isolate trace quantities of releasing hormones. A major breakthrough came in 1969 when Roger Burgus in Guillemin's group identified thyrotropin-releasing factor (TRF), securing funding and leading to the discovery of another regulator, FRF. Guillemin and Schally independently determined the structures of TRH and GnRH, earning the Nobel Prize. After joining the Salk Institute in 1970, Guillemin led the Laboratories for Neuroen-docrinology until 1989, discovering somatostatin and helping isolate endorphins. His pro-tégé Wylie Vale later purified CRF, continuing the tradition of competitive discovery.

David Morris Lee was born January 20, 1931 and is an American physicist best known for his pioneering work in low-temperature physics, particularly the discovery of superfluidity in helium-3. A professor emeritus at Cornell University and distinguished professor at Texas A&M University, Lee conducted the Nobel-winning research in the early 1970s with Robert C. Richardson and graduate student Douglas Osheroff. Using a Pomeranchuk cell to study helium-3 only thousandths of a degree above absolute zero, they detected unexpected anomalies that proved to be phase transitions into a superfluid state. This breakthrough earned the trio the 1996 Nobel Prize in Physics. Beyond helium-3 superfluidity, Lee's work explored many aspects of liquid, solid, and superfluid helium systems. His contributions include identifying antiferromagnetic ordering in solid helium-3, discovering nuclear spin waves in spin-polarized atomic hydrogen with Jack H. Freed, and locating the tri-critical point on the phase separation curve of helium-4/helium-3 mixtures with John Reppy. His former Cornell research group continues to study impurity-helium solids. Lee has received numerous honors, including the 1976 Sir Francis Simon Memorial Prize, the 1981 Oliver Buckley Prize (shared with Osheroff and Richardson), and the 1997 Golden Plate Award. He is also a member of the National Academy of Sciences and the American Academy of Arts and Sciences.

Raja Ramanna was born on 28 January 1925 and was an Indian nuclear physicist. He was the director of India's nuclear program in the late 1960s and early 1970s, which culminated in Smiling Buddha, India's first successful nuclear weapon test on 18 May 1974. Ramanna worked under Homi Jehangir Bhabha, and joined the nuclear program in 1964. Later became the director of this program in 1967. Ramanna expanded and supervised scientific research on nuclear weapons and was in charge of the team of scientists at Bhabha Atomic Research Centre (BARC) that designed and carried out the testing of the first nuclear device in 1974. Ramanna was associated with India's nuclear program for more than four decades, and also facilitated research for the Indian Armed Forces. He served in various roles such as Secretary for Defence Research, Government of India (1978–81), Scientific Adviser to the Minister of Defence (1978–81), Director-general of Defence Research and Development Organisation (1978–82), Chairman of Atomic Energy Commission (1983–87) and Secretary of the Department of Atomic Energy (1983–87). He later became the Minister of state for defence in 1990. He served as a Member of Parliament, Rajya Sabha from 1997 to 2003. Towards the later part of his career, he advocated against nuclear proliferation and testing.

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