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November

November SCIENTIST

- 1** **Fourneyron, Benoît** (1 November 1802–8 July 1867), French inventor. In 1832, he patented the first water turbine, the centrifugal reaction turbine.
- Laughlin, Robert Betts** (1 November 1950), American scientist. He is known for the discovery, in the 1980s, of another conformational quantum fluid. He was the co-winner, with D.H. Tsui and Störmer, of the Nobel Prize in physics in 1998 for their fundamental studies of the fractional quantum Hall effect
- 2** **Taylor, Richard Edward** (2 November 1929), Canadian scientist. He is known for his innovative experiments proving the existence of quarks in particle physics. The existence of quarks had been theorized since 1964, but not proven. He was the co-winner with J.I. Friedman and W. Kendall, of the Nobel Prize in physics in 1990 for their work in the development of the quark model.
- Schwartz, Melvin** (2 November 1932–28 August 2006), American scientist. He, together with J.L. Lederman and J. Steinberger won the Nobel Prize in physics in 1988 for their undoubted work on neutrinos (fermion spin $\frac{1}{2}$).
- 3** **Rutherford, Daniel** (3 November 1749–15 November 1819), Scottish doctor. As a student, he discovered the nitrogen in the air in 1772. It was he who designed the first maximum–minimum thermometer.
- Takamine, Jäkichi** (3 November 1854–22 July 1922), Japanese scientist. He is known for having isolated adrenaline in 1901. He also made the first effective bronchodilator for asthma.
- 4** **Kao, Charles K.** (4 November 1933), US-British engineer of Chinese origin. He is known for his baseline studies on the transmission of light in fiber optics. He is the co-winner of the Nobel Prize in physics in 2009 for his studies that enabled progress in communication through optical fibers.
- Védrine, Jacques C.** (4 November 1938), French scientist. He is a scholar and one of the architects of the art of catalytic science, known for combining the preparation of catalysts including zeolites, oxides, and polyoxometalates, and their physicochemical characterization by modern techniques, as well as applications in the field of catalysis, heterogeneous acid catalysis, and combinatorial science at the highest level.
- 5** **Sabatier, Paul** (5 November 1854–14 August 1941), French scientist. He was the co-winner of the Nobel Prize in chemistry in 1912. He invented the hydrogenation of organic compounds on catalysts based on highly dispersed metals, which enabled the development of catalysis and organic chemistry.
- Phillips, William Daniel** (5 November 1948), American scientist. He is the co-winner of the Nobel Prize in physics in 1997 with C. Cohen-Tannoudji and S. Chu for their work on atom-cooling and -trapping methods using laser light.
- 6** **Senefelder, Aloys** (6 November 1771–26 February 1834), Austrian actor. We owe him the invention of lithography in 1796. (From Greek: “lithos” means “stone”, and “graphein” means “write”).
- Wollan, Ernest Omar** (6 November 1902–11 March 1984), American scientist. He is known to have produced the first neutron diffraction experiment in 1945 and to have highlighted the phenomenon of antiferromagnetism.

7 **Curie-Skłodowska, Marie** (7 November 1867–4 July 1934), Polish-French scientist. She is famous for having been awarded the Nobel Prize twice. In 1903, she was the co-winner of the Nobel Prize in physics with P. Curie for their work in the field of radiochemistry in their discovery of polonium and radium. Subsequently, her tireless work on polonium and radium was awarded the Nobel Prize in chemistry in 1911.

Meitner, Lise (7 November 1878–27 October 1968), Austrian-Swedish scientist. She is known for her work on radioactivity and nuclear physics. Her work contributed to the discovery of atom fission. She also wrote the first theoretical explanation of nuclear fission.

Râman, Chandrasekhara Venkata (7 November 1888–21 November 1970), Indian scientist. He is particularly known for his studies on the scattering of visible and ultraviolet light when it passes through different media. His work on light scattering and Raman scattering enabled him to be awarded the Nobel Prize in physics in 1930.

8 **Kilby, Jack St. Clair** (8 November 1923–20 June 2005), American electrical engineer. He is particularly known for his pioneering work in the field of communication technology, particularly his discovery of the integrated circuit in 1958. His work earned him the Nobel Prize in physics in 2000.

On 8 November 1895: discovery of X-rays (Wilhelm Röntgen).

9 **Norrish, Ronald George Wreyford** (9 November 1897–7 June 1978), British scientist. He is known for his involvement in the study of fast reactions made by notably short pulses of energy, which generate a change in balance. He is the co-winner of the Nobel Prize in chemistry in 1967 with Porter and Eigen.

10 **Fischer, Ernst Otto** (10 November 1918–23 July 2007), German scientist. He is known for his research in the field of chemistry of organometallic compounds. He created carbene chemistry in developing the carbene fixing of a transition metal. He was awarded the Nobel Prize in chemistry in 1973 with G. Wilkinson for their work on organometallic compounds.

11 **Dawson, Harry Medforth** (11 November 1876–11 March 1939), English scientist. His scientific interest was the chemical reaction mechanism. He was interested in the study of catalysis by acids and bases in the halogenation reaction. He completed the iodination of acetone in different solutions (acetic acid–sodium acetate).

12 **Charles, Jacques Alexandre César** (12 November 1746–7 April 1823), French scientist. He is known for the Charles law: the pressure of a gas with constant volume varies with temperature. He was the first person to precisely measure the degree of expansion of gases. He observed that, for each degree-centigrade increase in temperature, the volume of the gas was dilated by $1/273$ of the volume at 0° . He is credited as the first person to fly using a balloon filled with hydrogen.

Rayleigh, John William Strutt (12 November 1842–30 June 1919), English scientist. He is known for discovering (with Ramsay) argon in the composition of air. By studying thin layers, he was able to determine the size of a few molecules. He was the winner of the Nobel Prize in physics in 1904 for his research on the density of gases and the discovery of argon.

13 **Leporin, Dorothea Christiane Erxleben** (13 November 1715–13 June 1762), the first female medical doctor in Germany.

On November 13, 2009: NASA discovered 75 liters of frozen water on the surface of the moon.

14 **Bakeland, Leo Hendrik** (14 November 1863–23 February 1944), Belgian- American scientist. He invented a type of photographic paper that could be developed under artificial light. In 1909, he announced the existence of Bakelite, which was the first thermoformed plastic.

15 **Herschel, William** (15 November 1738–25 August 1822), German-British astronomer. He is particularly known for having discovered infrared radiation (1800), the planet Uranus (1781), two satellites of Uranus (Titania and Oberon), and two satellites of Saturn (Mimas and Enceladus). The astronomical infrared observation satellite that was launched in 2009 (by an Ariane) bears his name: the Herschel satellite.

16 **Mąkosza, Mieczysław Józef** (16 November 1934), Polish scientist. He is known for discovering (with J. Winiarski) the aromatic vicarious nucleophilic substitution and phase transfer catalysis reactions.

17 **de Larderel, François Jacques** (17 November 1789–15 June 1858), Italian engineer of French origin. He is known to have first operated the vapors (*soffioni*) that naturally emerge from the ground, i.e., geothermal energy, in 1818. He constructed the oldest geothermal installation.

Wigner, Eugene Paul (17 November 1902–1 January 1995), Hungarian-American scientist. He is known for having shown that nuclear forces do not depend on an electric charge, so protons and neutrons in the nucleus have similar properties. He was the co-winner of the Nobel Prize in Physics in 1963 with M. Goeppert-Mayer and J.H.D. Jensen for their study of the structure of the atomic nucleus and their progress in quantum mechanics.

18 Blackett, Patrick Maynard Stuart (18 November 1897–13 July 1974), British scientist. He was awarded the Nobel Prize in physics in 1948 in recognition of his work in nuclear physics on the progress of the Wilson cloud chamber.

19 Sumner, James Batcheller (19 November 1887–12 August 1955), American scientist. He is known for having proven the crystallization of enzymes, which earned him the Nobel Prize in chemistry in 1946.

Palade, George Emil (19 November 1912–8 October 2008), Romanian-American scientist. He received the Nobel Prize in Medicine in 1974 with Claude A. and C. De Duve for their outstanding and decisive work towards the discovery of the structural and functional organization of the cell.

van de Hulst, Hendrick Cristoffell (19 November 1918–31 July 2000), Dutch astrophysicist. He is known for the discovery, in 1944, of the 21-cm line of hydrogen, which has many applications in radio astronomy. He studied interstellar matter, the structure of our galaxy and the solar corona. He also conducted baseline research on planetary atmospheres.

Lee, Yuan Tseh (19 November 1936), Taiwanese scientist. He is the co-winner of the 1986 Nobel Prize in chemistry with J.C. Polanyi and D.R. Herschbach for their work on the dynamics of chemical elementary processes.

20 von Guericke, Otto (20 November 1602–11 Mai 1686), German inventor. He is known to have developed the first vacuum pump in 1654.

Hubble, Edwin Powell (20 November 1889–28 September 1953), American astronomer. He is known for his studies that led to the understanding of our universe, such as the existence of other galaxies and universe expansion.

Warshel, Arieh (20 November 1940), Israeli-American scientist. He is known for his computational studies on the functional properties of biological molecules. He is the co-winner of the Nobel Prize in chemistry in 2013 with Levitt and Karplus for their work on multiscale models for complex chemical systems.

21 Richter, Hieronymus Theodor (21 November 1824–25 September 1898), German scientist. He is known to have noticed the indigo line in a spectrum, which led to the discovery of the new element indium.

Ipatieff, Vladimir Nikolaevich (21 November 1867–29 November 1952), American scientist of Russian origin. He is known for having determined the structure of isoprene and contributed to the progress of catalysis in the oil industry. Ipatieff discovered the catalytic reaction in the index increase in gasoline octane. His scientific work was also important for the development of aircraft gasoline for airplanes in the Second World War. He is considered the father of the modern petrochemical industry.

22 Néel, Louis Eugène Félix (22 November 1904–17 November 2000), French scientist. He is known for his research on important discoveries about ferrimagnetism and antiferromagnetism, which earned him the Nobel Prize in physics in 1970.

23 van der Waals, Johannes Diderik (23 November 1837–8 March 1923), Dutch scientist. He was awarded the Nobel Prize in physics in 1910 in recognition of his work on the continuity of fluid states, in this case, the equation for the state of liquids and gases, which bears his name.

24 van der Meer, Simon (24 November 1925–4 March 2011), Dutch scientist. He received the Nobel Prize in physics in 1984 with C. Rubbia for their decisive contribution to the project Super Proton Synchrotron – particle accelerator, which enabled the discovery of the field particles W and the Z vector of the weak force (which is responsible for β radioactivity).

Lee, Tsung-Dao (24 November 1926), Chinese-American scientist. He is the co-laureate of the Nobel Prize in physics in 1957 with C.N. Yang for their contribution to the study of the parity law, which later enabled the discovery of elementary particles.

- 25 von Mayer, Julius Robert** (25 November 1814–20 March 1878), German scientist. He is known for establishing the first law of thermodynamics in 1845. In this case, he was one of the pioneers in this field of physics. His scientific works and studies subsequently designed installations such as wind turbines.
- Nusselt, Ernst Kraft Wilhelm** (25 November 1882–1 September 1957), German scientist. He is known for his work on transfer by convection. His name remains attached to the dimensionless number known as the Nusselt number.
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- 26 Wurtz, Charles Adolphe** (26 November 1817–12 May 1884), French scientist. He is famous for synthesizing ethylamine, which is the first organic derivative of ammonia in 1849. He discovered phosphorus oxychloride and glycols. In collaboration with R. Fittig, he discovered the Würtz–Fittig synthesis.
- Ziegler, Karl Waldemar** (26 November 1898–12 August 1973), German scientist. He is known for his discovery in 1953 that a resin with attached metal ions such as aluminum and titanium can catalyze the production of polyethylene. He participated in the development of Ziegler–Natta catalysts. He is the co-winner of the Nobel Prize in chemistry in 1963 with G. Natta for their reference work on polymers.
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- 27 Onsager, Lars** (27 November 1903–5 October 1976), American scientist of Norwegian origin. He is best known for the discovery of the reciprocal relations between heat and electrical potential in irreversible thermodynamic processes, which earned him the Nobel Prize in chemistry in 1968.
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- 28 Froude, William** (28 November 1810–4 May 1879), British naval architect, engineer and hydrodynamician. He is mainly known as the first person to experimentally examine the resistance to the movement of a fluid. He also created the first pool-testing models.
- Hyatt, John Wesley** (28 November 1837–10 May 1920), American inventor. We owe him the invention of celluloid (cellulose + camphor, which is obtained from the laurel tree), which is the first synthetic plastic material that is simultaneously notably resistant and flexible. It was industrially manufactured in 1872. He also invented an ingenious method to purify water.
- Hulse, Russell Alan** (28 November 1950), American scientist. Co-winner of the Nobel Prize in physics in 1993 with J.H. Taylor for the discovery of a new type of pulsar, which is a key element in the study of gravitation.
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- 29 Doppler, Christian Andreas** (29 November 1803–17 March 1853), Austrian physicist and mathematician. He is known for his discovery in 1842 of the Doppler Effect.
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- 30 Tennant, Smithson** (30 November 1761–22 February 1815), British scientist. He is known for the discovery of iridium, which was named after the Greek word for “rainbow sky” because of the different colors of its compounds. He also discovered osmium, which is named after the Greek word for “odor” because of the scent of one of its compounds.
- Dalén, Nils Gustaf** (30 November 1869–9 December 1937), Swedish inventor. He is known for the invention of automatic regulators for use with gas accumulators to illuminate lighthouses and beacons, which earned him the Nobel Prize in physics in 1912.
- Taube, Henry** (30 November 1915–16 November 2005), Canadian American scientist. He was the winner of the Nobel Prize in chemistry in 1983 for his remarkable studies on the mechanisms of electron-transfer reactions.
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