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## August

## AUGUST SCIENTIST

- 1 **Hevesy, George** (1 August 1885–5 July 1966), Hungarian scientist. To him we owe the discovery of the chemical element hafnium, named in reference to the etymological *Hafnia*, the Latin name of the city of Copenhagen. He is particularly known for his research on isotope tracing using radioactive isotopes, which earned him the honorable Nobel Prize in chemistry in 1943.  
  
**Gerlach, Walther** (1 August 1889–10 August 1979), German scientist. He is known for the discovery (in collaboration with O. Stern) of quantization in a magnetic field in 1922.  
  
**Osheroff, Douglas Dean** (1 August 1945), American scientist. He is a skillful researcher who is best known for the discovery of the superfluidity in helium-3 at low temperature, which earned him the Nobel Prize in physics in 1996 (with R.C. Richardson and D.M. Lee).
- 2 **Stromeyer, Friedrich** (2 August 1776–18 August 1835), German scientist. He was responsible for the separation of the chemical element cadmium for the first time in 1817. His name has also been immortalized in the mineral stromeyerite since 1832.  
  
**Gmelin, Leopold** (2 August 1788–13 April 1853), German scientist. He is known for the discovery of potassium ferrocyanide in 1822. The terms “esters” and “ketone” were introduced for the first time by Gmelin.
- 3 **Tanaka, Kāichi** (3 August 1959), Japanese scientist. His research is concerned with soft ionization desorption and is widely used today for the analysis of organic compounds by mass spectrometry. He was the co-winner of the Nobel Prize in chemistry in 2002.
- 4 **Conté, Nicolas-Jacques** (4 August 1755–6 December 1805), French chemist, physicist and painter. To him we owe the discovery of the pencil.
- 5 **Armstrong, Neil Alden** (5 August 1930–25 August 2012), astronaut, aviator, US test pilot. The Moon has fascinated man from the four corners of the Earth since the dawn of time. Moreover, how can we forget Selena and Artemis in Greek mythology, called Luna and Diana in Roman mythology? How can we not remember the story of Jules Verne who wrote, in 1865, in *From the Earth to the Moon* and continued in *Around the Moon*, the story of three men who left to orbit the Moon before returning to earth?
- 6 **Wollaston, William Hyde** (6 August 1766–22 December 1828), British scientist. He was responsible for the separation of palladium, (named after asteroid Pallas) and rhodium, pink in Greek, which is the color of some of its compounds. He was the first to establish that titanium and niobium exist as independent elements and also discovered cystine. He invented the goniometer and the Wollaston prism, named in his honor.
- 7 **Brillouin, Léon** (7 August 1889–4 October 1969), Franco-American scientist. He devoted his life to research in the fields of solid state physics and quantum mechanics. He is known for the discovery of the Brillouin scattering concept.  
  
**Mather, John C.** (7 August 1946), American astrophysicist and cosmologist. He is known for the discovery of the nature of the blackbody spectrum and the anisotropy of the cosmic background microwave radiation. With G.F. Smoot, he received the Nobel Prize in physics in 2006.
- 8 **Lawrence, Ernest Orlando** (8 August 1901–27 August 1958), American scientist. He is known for his undeniable contributions to nuclear physics, reactor physics and radiation therapy. It was he who invented the cyclotron, with which he studied the structures of atoms and achieved the transmutation of elements. In 1939, he was awarded the Nobel Prize in physics. The Lawrencium chemical element is named in his honor.  
  
**Dirac, Paul Adrien Maurice** (8 August 1902–20 October 1984), British scientist. He and E. Schrödinger were co-winners of the Nobel Prize in physics in 1933 for the discovery of new forms of the atomic theory.
- 9 **Avogadro, Lorenzo Romano Amedeo Carlo** (9 August 1776–9 July 1856), Italian scientist. He advanced the hypothesis that all gases contain the same number of particles per unit of volume. In 1811, he enunciated Avogadro's law. He was the first to distinguish the atoms of molecules in terms of their weight and mass.  
  
**Hückel, Erich Armand Arthur Joseph** (9 August 1896–16 February 1980), German scientist. He established (with Debye) the theory concerning electrolytic solutions known as the Debye–Hückel equation. He is also known for the Hückel molecular orbital theory.

**Wyckoff, Ralph Walter Graystone** (9 August 1897–3 November 1994), American scientist. He is known for his pioneering contributions in the field of crystallography. His research contributed to the understanding of three-dimensional microscopy. He also developed a vaccine against the disease caused by the equine encephalitis virus.

**Fowler, William Alfred** (9 August 1911–14 March 1995), American scientist. He is known for his work on nuclear reactions for the formation of chemical elements in the universe. He was awarded the Nobel Prize in physics in 1983.

- 10 Tiselius, Arne Wilhelm Kaurin** (10 August 1902–29 October 1971), Swedish scientist. He developed and improved separation methods and biochemical purification by electrophoresis. He had a significant contribution to the development of chromatography. For his work on electrophoresis and adsorption analysis, he won the Nobel Prize in chemistry in 1948.

**Paul, Wolfgang** (10 August 1913–7 December 1993), German scientist. He is best known for his work on the development of the ion trap technique. He was the co-winner of the Nobel Prize in physics in 1989.

- 11 Klug, Aaron** (11 August 1926), Lithuanian scientist. He developed crystallographic electron microscopy that earned him the Nobel Prize in chemistry in 1982. Thus, he was able to determine the structures of complex nucleic acids.

- 12 Schrödinger, Erwin Rudolf Josef Alexander** (12 August 1887–4 January 1961), Austrian scientist. He said that an electron can be in any orbit of the atom, around which its matter waves can extend into an exact number of wavelengths. This effect forms a continuous wave and thus does not represent an electric charge acceleration. The relationships that arose from this idea established quantum theory on a mathematical basis. With P. Dirac, he was the co-winner of the Nobel Prize in physics in 1933.

- 13 Ångström, Anders Jonas** (13 August 1814–21 June 1874), Swedish scientist. He was among the first who were interested in spectral studies and is known as one of the fathers of spectroscopy. In his honor, the unit of measurement for wavelength is the angstrom ( $1 \text{ \AA} = 10^{-10} \text{ m}$ ). He also wrote about the discovery of nitrogen in the sun. His name was also given to a lunar crater and an asteroid.

**Willstätter, Richard Martin** (13 August 1872–31 August 1942), German scientist. To him we owe the invention of paper chromatography, the synthesis of several alkaloids, and his undoubted studies on the structure of chlorophyll. He was awarded the Nobel Prize in chemistry in 1915 for his contributions concerning the chlorophyll structure. During the First World War, he designed an effective gas mask.

**Sanger, Frederick** (13 August 1918–19 November 2013), English scientist. He is known for his baseline studies on insulin, which earned him the Nobel Prize in chemistry in 1958. He is also the co-winner of the Nobel Prize in chemistry in 1980 for studies that helped determine the links for nucleic acids.

- 14 Ørsted, Hans Christian** (14 August 1777–9 March 1851), Danish scientist. He was the first to prepare metallic aluminum. It was he who proved that the passage of an electric current generates a magnetic field in the area around the driver in 1819.

**Dempster, Arthur Jeffrey** (14 August 1886–11 March 1950), Canadian-American scientist. He discovered the best known isotope of uranium, uranium-235, in 1935.

**Ernst, Richard Robert** (14 August 1933), Swiss scientist. He is known for his fundamental research on high-definition nuclear magnetic resonance spectroscopy. He was the winner of the Nobel Prize in chemistry in 1991.

- 15 Tilden, William Augustus** (15 August 1842–11 December 1926), British scientist. His research studies included research on terpenes, brucine, strychnine, and caffeine. He is known for the discovery of isoprene prepared from terpene for the manufacture of synthetic rubber.

**Brogie, Louis Victor** (15 August 1892–19 March 1987), French scientist. He was the first to prove that any particle will have an associated wave, and the length of the waves is inversely related to the momentum of the particle, which itself depends on its mass and its velocity. For his discovery of the wave nature of electrons, he was the winner of the Nobel Prize in physics in 1929.

**Heck, Richard** (15 August 1931), American scientist. He is known for his contributions to organometallic catalysis for his research on palladium catalysts. He, E. Negishi, and A. Suzuki were the co-winners of the Nobel Prize in chemistry in 2010.

- 16 Lippmann, Jonas Ferdinand Gabriel** (16 August 1845–13 July 1921), French scientist. He is known for the breeding method of color photography as a medium having interference phenomenon, which earned him the Nobel Prize in physics in 1908.

**Kipping, Frederick Stanley** (16 August 1863–1 May 1949), English scientist. He made the first organic chemistry textbook in 1894. He synthesized many organic compounds containing one or more silicon atoms. His discoveries have proved indispensable when silicone atoms were used in greases, lubricants, hydraulic fluids, and synthetic rubbers.

**Stanley, Wendell Meredith** (16 August 1904–15 June 1971), American scientist. Co-winner of the Nobel Prize in chemistry in 1946 for the design of enzymes and purified proteins.

- 17 Kranz, Eugene Franci** (17 August 1933), American astronaut. He is known as the flight director under the *Gemini* and *Apollo* programs and as a hero in the *Apollo 13* mission.

- 18 On 18 August 1868** the French astronomer Jules Janssen discovered helium during the observation of a total eclipse in India.

- 19 Gahn, Johan Gottlieb** (19 August 1745–8 December 1818), Swedish scientist. He was responsible for the discovery of manganese. He discovered that phosphorus is an essential component of bones. In recognition of his work, a zinc aluminate mineral bears his name, gahnite.

**Meyer, Julius Lothar** (19 August 1830–11 April 1895), German scientist. He was responsible for the classification of the periodic elements (independently of Mendeleev's work) specifying the periodicity of their properties.

**Boyle, Willard** (19 August 1924–7 May 2011), Canadian scientist. He was the co-winner of the Nobel Prize in physics in 2009 with G.E. Smith for the idea of designing semiconductor circuit imaging, the CCD.

- 20** **Berzelius, Jöns Jacob** (20 August 1779–7 August 1848), Swedish scientist. He is credited as the architect of modern chemistry. For the symbol of the chemical elements, he proposed that the initial letter of the Latin name (or that letter and the second) be used as a symbol in 1813. He discovered selenium, cerium, and thorium, whereas he isolated silicon, zirconium, and titanium. It was he who defined catalysis, introducing the term in 1836.
- Shirakawa, Hideki** (20 August 1936), Japanese scientist. He is known for the discovery of conductive polymers. He along with A. Heeger and A. MacDiarmid were the co-winners of the Nobel Prize in chemistry in 2000.
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- 21** **Murdock, William** (21 August 1754–15 November 1839), Scottish engineer. To him we owe him the first invention with gas. In 1800 he tried coal gas for lighting. He invented steam cannons and rifles as well as a machine to grind and compress the peat, the first “locomotive” on Earth (1784). He is known for the first aniline dyes and patented protective paints in 1791.
- Gerhardt, Charles Frédéric** (21 August 1816–19 August 1856), French scientist. He is known for the first synthesis of acetylsalicylic acid used for the preparation of aspirin and for his outstanding contributions in the field of organic chemistry.
- Hall, John L.** (21 August 1934), American scientist. He is the co-winner of the Nobel Prize in physics in 2005 for inventing precision laser spectroscopy.
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- 22** **Papin, Denis** (22 August 1647–? 1712), French physicist, inventor, and mathematician. In 1692, he invented the first submarine in history and built an air still, a machine to control the evaporation of sea water and salt production.
- Hillier, James** (22 August 1915–15 January 2007), Canadian-American scientist. He made significant contributions towards the invention of a high-resolution electron microscope.
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- 23** **Bravais, Auguste** (23 August 1811–30 March 1863), French physicist, astronomer, mineralogist and geologist. He is known for the Bravais lattice and laws in crystallography.
- Reynolds, Osborne** (23 August 1842–21 February 1912), Irish scientist. His research studies relate the dynamics and hydrodynamics of fluids. In 1883, he introduced the Reynolds number, which is a dimensionless number that characterizes the nature of the flow regime (laminar, transitional, and turbulent).
- Curl Jr., Robert Floyd** (23 August 1933), American scientist. For the discovery of fullerenes, he, H. Kroto and R. Smalley were the co-winners of the Nobel Prize in chemistry in 1996.
- Steitz, Thomas A.** (23 August 1940), American molecular biologist. Along with A. Yonath and V. Ramakrishnan, he was a co-winner of the Nobel Prize in chemistry in 2009 for his contribution to the discovery of the structure and function of the ribosome.
- Novoselov, Konstantin** (23 August 1974), Russian-British scientist. He and A. Geim were co-winners of the Nobel Prize in physics in 2010 for their work on the two-dimensional material graphene.
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- 24** On **24 August 2006** it was discovered that Pluto is a member of a new class of celestial objects and not a planet of the solar system.
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- 25** **Kroemer, Herbert** (25 August 1928), German and American scientist. He was a co-winner of the Nobel Prize in physics in 2000 for his contribution to the development of semiconductor heterostructures used in fast electronics and optoelectronics.
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- 26** **Montgolfier, Joseph-Michel** (26 August 1740–26 June 1810), French inventor. He built (with his brother) a hot air balloon, which was the first “stone/brick” in the development of the first flight of a human being. He is also known as the manufacturer of the hydraulic ram.
- Lavoisier, Antoine Laurent** (26 August 1743–8 May 1794), French scientist. One of the promoters of modern chemistry. In 1770, he developed new methods to prepare saltpeter potash. He was the first to establish a version of the law of conservation of matter. He had a significant contribution to the development of chemical nomenclature. He was guillotined during the Reign of Terror.
- Franck, James** (26 August 1882–21 May 1964), German scientist. He and G.L. Hertz received the Nobel Prize in physics in 1925 for their discovery of the laws governing a collision of an electron in an atom.
- Walter, Hellmuth** (26 August 1900–16 December 1980), German engineer. In 1935, he built the first engine monopropellant initiated by a fuse (only liquid). A rocket, known as “Walter” in his honor, was on the plane and had a Heinkel Kadett engine takeoff role. To him we owe the first flight of a rocket assisted device in the history of aviation.
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- 27** **Righi, Augusto** (27 August 1850–8 June 1920), Italian scientist. His early research studies were mainly related to electrostatics. He was particularly known for his pioneering research in the field of electromagnetism.
- Bosch, Carl** (27 August 1874–26 April 1940), German scientist. He developed the industrial manufacturing process of ammonia, the Haber process. He replaced the Kuhlmann platinum catalyst with catalysts based on iron. He and F. Bergius were the co-winners of the Nobel Prize in chemistry in 1931 for their development of chemical synthesis methods at high pressure, in this case for the production of ammonia from nitrogen.
- Ramsey Jr., Norman Foster** (27 August 1915–4 November 2011), American scientist. He is known for his research studies that led to the invention of a method for separating alternating fields, followed by clear applications to atomic clocks and hydrogen masers. Thus, he was awarded with the Nobel Prize in 1989.
- Shimomura, Osamu** (27 August 1928), Japanese-American scientist. He is known for the discovery of green fluorescent protein. For this discovery, he and R. Tsien Chalfie were co-winners of the Nobel Prize in chemistry in 2008.
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- 28** **Whipple, George Hoyt** (28 August 1878–1 February 1976), American scientist. He was awarded the Nobel Prize in physiology or medicine in 1934 for the work concerning liver therapy in cases of anemia.

**29** On **29 August 1831** the invention of the dynamo was reported by Michael Faraday.

On **29 August 1982** the chemical element Meitnerium (Mt) was synthesized for the first time.

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**30** **Van't Hoff, Jacobus Hendrikus** (30 August 1852–1 March 1911), Dutch scientist. He was the pioneer of theoretical chemistry, with a decisive contribution in the field of thermodynamics. He was awarded the 1901 Nobel Prize in chemistry for his discovery of the laws of dynamics and osmotic pressure in solutions.

**Rutherford, Ernest** (30 August 1871–19 October 1937), British scientist. He is considered the promoter of nuclear physics. He is known for the discovery of alpha and beta radiation and for proving that the radioactivity is accompanied by the disintegration of chemical elements. He was awarded the Nobel Prize in chemistry in 1908.

**Svedberg, Theodor** (30 August 1884–25 February 1971), Swedish scientist. He was responsible for the invention of a centrifuge device and the development of modern electrophoretic methods for the study of proteins. He was crowned with the Nobel Prize in chemistry in 1926 for his research on dispersed systems.

**Purcell, Edward Mills** (30 August 1912–7 March 1997), American scientist. He was awarded the Nobel Prize in physics in 1952 for his discovery of nuclear magnetic resonance.

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**31** **Chevreul, Michel Eugène** (31 August 1786–9 April 1889), French scientist. He was interested in the chemical nature of fats and was the architect of this branch of chemistry. He is also known as the founder of gerontology.

**Paneth, Friedrich Adolf** (31 August 1887–17 September 1958), Austro-English scientist. He was known for the development of methods to find traces of helium in rocks to determine their age because the uranium in rocks releases helium slowly. This technique can measure the age of the meteorites, which helped establish the age of the solar system (currently accepted as 4600 million years).

**Politzer, Hugh David** (31 August 1949), American scientist. He was awarded the Nobel Prize in physics in 2004 with D. Gross and F. Wilczek. They discovered asymptotic freedom, one of the properties of a strong interaction.

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Ioana Fechete  
*Institut de chimie et procédés pour l'énergie, l'environnement  
et la santé (ICPEES), UMR 7515 CNRS,  
université de Strasbourg, 25, rue Becquerel, 67087 Strasbourg  
cedex 2, France*  
E-mail address: [ifechete@unistra.fr](mailto:ifechete@unistra.fr)

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