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January

JANUARY SCIENTIST

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- 1** **Bose, Satyendra Nath** (1 January 1894–4 February 1974), Indian scientist. He made many important contributions to the field of the quantum statistics of photons. His name is associated with that of Einstein; the phenomenon of the Bose–Einstein condensate is named in their honor. He also collaborated with M. Curie.
- On January 1, 1925:** Edwin Hubble announces the discovery of other galaxies, revealing that the universe is much larger than previously thought and leading to the discovery of the expansion of the Universe.
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- 2** **Clausius, Rudolf Julius Emmanuel** (2 January 1822–24 August 1888), German scientist. He is considered to be the father of the science of thermodynamics. He is known for introducing the concept of entropy and the virial theorem as applied to heat. He contributed to the refinement of the second law of thermodynamics.
- Heitler, Walter Heinrich** (2 January 1904–15 November 1981), German-Irish scientist. His work included applications of quantum mechanics in quantum electrodynamics, the covalent bond, cosmic rays and quantum field theory. The Heitler integral equation, which describes the diffusion process, is based on his theory of radiation damping. He predicted the existence of the meson.
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- 3** **Matignon, Camille** (3 January 1867–18 March 1934), French scientist. His outstanding research work comprised studies of thermochemistry and mineral chemistry. He was one of the founders of the Institute of Theoretical and Applied Optics in Paris.
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- 4** **Newton, Isaac** (4 January 1643–31 March 1727), English scientist. He made a number of fundamental contributions in the fields of mechanics, optics, and mathematics. He established the theory of color, developed the law of universal gravitation and formulated infinitesimal calculus. He also invented the Newtonian telescope, the first known reflecting telescope.
- Poni, Petru** (4 January 1841–2 April 1925), Romanian scientist. He studied a variety of minerals and discovered two (brostenite and badenite). He performed studies concerning the quality and composition of mineral water from a source in the Carpathian Mountains as well as studies of the composition and characteristics of oil.
- Kossel, Walther Ludwig Julius** (4 January 1888–22 May 1956), German scientist. He discovered the laws governing the spectral shift, diffraction and interference of X-rays in crystals. He developed the theory of ionic bonds. He interpreted chemical affinity in terms of the coordinate bond. He (with Bohr and Stonner) established the distribution of electrons among the energy levels of atoms.
- Josephson, Brian** (4 January 1940), British scientist. He is known for his studies of metals in a state of superconductivity. For his theoretical predictions of the properties and phenomena of electric currents passing above a tunneling barrier, known (since 1962) as the Josephson effect, he was awarded the Nobel Prize in Physics in 1973.
- Schrock, Richard Royce** (4 January 1945), American scientist. He is known for his studies in the fields of homogeneous catalysis and organometallic and polymer chemistry, which have become standard references. His efforts in the development of the metathesis method in organic synthesis were rewarded in 2005 with the Nobel Prize in Chemistry.
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- 5 Auger, Victor** (5 January 1864–20 November 1949), French scientist. He is known for his research in the fields of metal chemistry (Ur, Mn, and Mo) and organic chemistry (organic derivatives of Sb, P, and As). He developed a unique method for the determination of sulfate compounds and ammonia.
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- 6 Montgolfier, Jacques-Étienne** (6 January 1745–2 August 1799), French inventor. He was the first human being to conduct a flight in a hot air balloon. He was also the inventor of the hydraulic ram.
- Payen, Anselme** (6 January 1795–12 May 1871), French scientist. He is known for the discovery of the first enzyme, diastase, which he prepared in concentrated form. He established the convention of using the suffix “-ase” in the names of enzymes. Diastase is an example of organic catalysis in living tissue. In 1834, he isolated from wood a substance he called “cellulose.”
- Agârbiceanu, Ion I.** (6 January 1907–9 March 1971), Romanian scientist. He is known for his studies in the fields of atomic physics and spectroscopy. He developed a laser using helium and neon gases.
- Pitzer, Kenneth Sanborn** (6 January 1914–26 December 1997), American scientist. He is known for his research studies in the fields of spectroscopy, kinetics, molecular structure, and thermodynamic of molecules.
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- 7 Mitscherlich, Eilhard** (7 January 1794–28 August 1863), German scientist. He discovered that compounds of similar composition tend to crystallize together, a theory known as isomorphism. He also discovered polymorphism. He obtained benzene through the distillation of benzoic acid and lime. He discovered permanganic acid, selenic acid and nitrobenzene.
- Gault, Francois G.** (7 January 1931–4 August 1979), French scientist. He was interested in the study of the catalytic mechanisms of hydrocarbons using isotope tracing (^{13}C and D_2). He was the first to demonstrate the isomerization of alkanes on platinum metal film. He was the founder of the Laboratories of Catalysis of Caen (1960) and Strasbourg (1971).
- Walker, John E.** (7 January 1941), British scientist. He was a co-winner of the Nobel Prize in Chemistry in 1997 for the elucidation of the enzymatic mechanism underlying the synthesis of adenosine triphosphate.
- On January 7, 1610:** Galileo discovered the four satellites of Jupiter using a telescope he constructed.
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- 8 Bothe, Walther Wilhelm Georg** (8 January 1891–8 February 1957), German scientist. His research represents the foundations of modern nuclear physics. He developed and applied coincidence methods for the study of nuclear reactions, the Compton effect, cosmic rays, and the wave-particle duality of radiation. He was a co-winner of the Nobel Prize in Physics in 1954.
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- 9 Sørensen, Søren Peder Lauritz** (9 January 1868–12 February 1939), Danish scientist. He improved the methods for the electrochemical and colorimetric measurement of pH. He established the notion of the hydrogen potential.
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- 10 Wilson, Robert Woodrow** (10 January 1936), American scientist. He (with Penzias) discovered the cosmic background microwave radiation, which is understood to be the electromagnetic radiation originating from the hot, dense period of the early Universe, the Big Bang. He was a co-winner of the Nobel Prize in Physics in 1978.
- On January 10, 1946:** the United States achieved the first radio communication between the Earth and the Moon.
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- 11 Steno, Nicolas** (11 January 1638–5 December 1686), Danish scientist. He formulated the first law of crystallography and is also known for the law of superposition (in geology).
- Lister, Joseph Jackson** (11 January 1786–24 October 1869), British amateur physicist. He developed achromatic lenses for microscopes. He was also the first to distinguish the true biconcave form of red blood cells.
- Hofmann, Albert** (11 January 1906–29 April 2008), Swiss scientist. He is known for the discovery of LSD (an abbreviation of the German word “lysergsäurediethylamid,” a psychotropic hallucinogen). As part of his pharmaceutical research on ergot to find a circulatory stimulant, Hoffmann synthesized various derivatives of lysergic acid amides.
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- 12 van Helmont, Jan Baptist** (12 January 1579–30 December 1644), Dutch scientist. He introduced the concept of a gas. He is known for the discovery of carbon dioxide and also for determining the function of gastric juice in digestion.

Müller, Paul Hermann (12 January 1899–12 October 1965), Swiss scientist. He discovered the efficacy of dichlorodiphenyltrichloroethane insecticide (DDT). DDT quickly destroys insects while having a negligible toxic effect on plants or mammals. He was awarded the Nobel Prize in Physiology or Medicine in 1948.

13 **Wien, Wilhelm Carl Werner Otto Fritz Franz** (13 January 1864–30 August 1928), German scientist. He is known for his studies of the effects of electric and magnetic fields on positively charged ions. He established a law describing the frequency distribution of radiation emitted by a blackbody depending on its temperature. He also invented the Wien bridge. He was awarded the Nobel Prize in Physics in 1911.

Betzig, Eric (13 January 1960), American scientist. He is known for his work in fluorescence microscopy, specifically, the PALM microscope. He received the Nobel Prize in Chemistry in 2014 for his work in the field of nanoscopy.

14 **Sakata, Shoichi** (14 January 1911–16 October 1970), Japanese scientist. He is known for his studies of elementary particles, which were the genesis of the quark model.

15 **Prout, William** (15 January 1785–9 April 1850), British scientist. In 1823, he identified hydrochloric acid in the gastric juices of the stomach. In 1827, he was the first to divide the components of foods into the familiar groups known today as carbohydrates, fats and proteins. He also applied his skills to improving the barometer.

Virtanen, Artturi Ilmari (15 January 1895–11 November 1973), Finnish scientist. He devoted his life to research in the fields of agricultural chemistry and nutrition. In 1932, he patented a method for preserving fodder (the AIV method). In 1945, he received the Nobel Prize in Chemistry.

Teller, Edward (15 January 1908–9 September 2003), Hungarian-American scientist. He is known for his studies of the coloration of metallic dyes. He developed the explanation of the geometric distortion of the electron cloud, known as the Jahn–Teller effect. He participated in developing the explanation of the physical adsorption of gas molecules on the surfaces of solids, known as the BET theory.

Chalfie, Martin (15 January 1947), American scientist. He discovered the green fluorescent protein. This discovery earned him the Nobel Prize in Chemistry in 2008.

16 **Ekeberg, Anders Gustaf** (16 January 1767–11 February 1813), Swedish scientist. He is known for his discovery of tantalum (Ta) in 1802. Tantalum is so named because of his excitement at finding that it was resistant to acid and did not dissolve; instead, the acid remained surrounding the sample, like the Tantalus of Greek mythology, who had water up to his chin but could not drink.

Michaelis, Leonor (16 January 1875–8 October 1949), German scientist. He is known for his research in the field of enzyme kinetics. In 1913, he (with Menten) established the Michaelis–Menten equation. He discovered thioglycolic acid, Janus green, and, in 1902, the existence of Michaelis–Gutmann bodies in infections of the urinary tract.

Adkins, Homer Burton (16 January 1892–10 August 1949), American scientist. He studied the structure and reactivity of organic compounds as well as the role of catalysts in hydrogenation reactions. He developed the Adkins catalysts and the methods of preparation of certain organic compounds. In collaboration with Peterson, he developed the Adkins–Peterson reaction.

17 **Franklin, Benjamin** (17 January 1706–17 April 1790), American scientist. He is known for his research in the fields of electricity and meteorology. He proved the electrical nature of lightning and was the inventor of the lightning rod.

Zhabotinsky, Anatol Markovich (17 January 1938–16 September 2008), Russian scientist. He is known for his studies of the spread of chemical waves. He was instrumental in developing Belousov–Zhabotinsky theory.

18 **Frankland, Edward** (18 January 1825–9 August 1899), British scientist. He discovered organometallic compounds and was the first to focus on hybrid molecules of organometallic compounds. He established the theory of valence in chemistry.

Goldschmidt, Johannes Hans Wilhelm (18 January 1861–21 May 1923), German scientist. As a student of R. Bunsen, he invented thermite and dedicated his research to the thermite reaction, often called the “Goldschmidt reaction.”

Mintrop, Ludger (18 January 1880–1 January 1956), German scientist. During World War I, he developed the seismic method to identify Allied artillery pieces. Thereafter, he used this method to study the geological basement and was responsible for developing seismic surface surveys for oil exploration.

Nambu, Yoichiro (18 January 1921), American scientist of Japanese origin. He is known as the creator of string theory. He was awarded in 2008 the Nobel Prize in Physics for the discovery of the mechanism of spontaneous symmetry breaking in subatomic physics.

19 **Watt, James** (19 January 1736–25 August 1819), Scottish engineer. He is regarded as a pioneer of the industrial revolution because of his improvements to the steam engine.

Bessemer, Henry (19 January 1813–15 March 1898), British scientist. His name is associated with the Bessemer process for steel production, which was discovered in 1856.

20 **Paulze, Marie-Anne Pierrette or de Lavoisier, Marie-Anne** (20 January 1758–10 February 1836), French scientist. She was the first female chemist. She is known as a translator of several books written by English chemists, predominantly for the benefit of her husband, the chemist Antoine Lavoisier. Her translations played an important role in the history of chemistry.

Ampère, André-Marie (20 January 1775–10 June 1836), French scientist. He is known as the founder of the science of moving electrical currents, known as electrodynamics. He was the first to differentiate the flow of current from the flow of the force that drives it, the latter being measured in volts, in honor of Volta. He was also the inventor (in collaboration with François Arago) of the first electric telegraph and was the first to develop the theory of electromagnetism.

21 **Le Bel, Joseph Achille** (21 January 1847–6 August 1930), French scientist. He is considered to be the founder of modern stereochemistry. His research focused on asymmetric carbon and the distillation of petroleum treated with amyl alcohol. He was also interested in the evolution of the solar system.

22 **Gassend (Gassendi), Pierre** (22 January 1592–24 October 1655), French scientist. He is known for his contributions to the refinement of the atomic theory of Lucretius and Epicurus. He was a great defender of Galileo and opposed the views of Descartes with regard to certain aspects of philosophy and physics. It was he who suggested to Fermat that time should be introduced into the equations of motion.

Landau, Lev Davidovich (22 January 1908–1 April 1968), Russian scientist. He is known for his work in the fields of quantum mechanics and very low temperatures. He has developed a number of theories regarding condensed states of matter. In 1962, he was the winner of the Nobel Prize in Physics.

Heeger, Alan Jay (22 January 1936), American scientist. With A. MacDiarmid and H. Shirakawa, he discovered conductive polymers, and this group of researchers was jointly awarded the Nobel Prize in Chemistry in 2000.

23 **Claus, Karl Ernst** (23 January 1796–24 March 1864), Russian scientist. He is known for the discovery of the chemical element ruthenium in 1844.

Diels, Otto Paul Hermann (23 January 1876–7 March 1954), German scientist. He isolated carbon suboxide (C_3O_2). He discovered a technique of atomic combination by means of a reaction capable of joining two compounds such that they form a ring of atoms. He discovered the synthesis of diene (with Alder). He won the Nobel Prize in Chemistry in 1950.

Yukawa, Hideki (23 January 1907–8 September 1981), Japanese scientist. His theoretical research on nuclear forces contributed to the discovery of mesons. In 1949, he was awarded the Nobel Prize in Physics.

Polanyi, John Charles (23 January 1929), Canadian-Hungarian scientist. He is known for his research on infrared chemiluminescence. The transition state theory (TST) developed by Polanyi and Eyring represents a universal theory that is able to predict the rate of a catalytic reaction, more specifically, the pre-exponential factor. He received the Nobel Prize in Chemistry in 1986.

24 **Travers, Morris William** (24 January 1872–25 August 1961), English chemist. His name is associated with the discovery of krypton, neon and xenon.

Shechtman, Dan (24 January 1941), Israeli scientist. He is known for his research that led to the adaptation of the notion of order to that of frequency. He discovered quasi-crystals, which produce strong, discreet diffraction but have a non-periodic structure. He received the Nobel Prize in Chemistry in 2011.

- 25 Boyle, Robert** (25 January 1627–30 December 1691), Irish scientist. He is considered to be the father of chemistry. He demonstrated the inverse relation between changes in the volume and pressure of a gas. He proved that to reduce the volume of air trapped in a tube by one half, it is necessary to double the pressure of mercury, thus developing the nascent form of the law of gas expansion.
- Prigogine, Ilya** (25 January 1917–28 May 2003), Belgian scientist of Russian origin. He received the Nobel Prize in Chemistry in 1977 for his significant contributions to the field of thermodynamics research.
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- 26 Kusch, Polykarp** (26 January 1911–20 March 1993), German scientist. He is known for his accurate analysis of the magnetic moment of the electron, for which he won the Nobel Prize in Physics in 1955.
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- 27 Goldschmidt, Victor** (27 January 1888–20 March 1947), Swiss scientist. He is regarded as one of the pioneers of geochemistry. He predicted which elements should be present in which types of minerals. He developed the Goldschmidt classification of chemical elements. His collaboration with V. Vernadsky resulted in remarkable contributions to crystal chemistry and geochemistry.
- Ting, Samuel Chao Chung** (27 January 1936), American scientist of Chinese origin. He is known as the pioneer of the discovery of a new heavy elementary particle, the psi meson. He was the co-winner of the Nobel Prize in Physics in 1976, with B. Richter.
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- 28 de La Condamine, Charles Marie** (28 January 1701–4 February 1774), French scientist. He is known for introducing rubber to Europe in 1736.
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- 29 Deutsch, Martin** (29 January 1917–16 August 2002), American scientist. He is known for the discovery of positronium.
- Salam, Abdus** (29 January 1926–21 November 1996), Pakistani scientist. His research spanned multiple fields of physics, including the unification of electromagnetism with the weak interaction in the theory of electroweak interactions. He was awarded the Nobel Prize in Physics in 1979.
- On January 29, 1886:** The first automobile was invented by Karl Benz.
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- 30 Akasaki, Isamu** (30 January 1929), Japanese scientist. He discovered p-type gallium nitride (GaN), fabricated the first blue/UV LED based on a GaN p–n junction, and achieved the conductivity control of n-type GaN. He was awarded the 2014 Nobel Prize in Physics for inventing the bright blue GaN p–n junction LED and the high-brightness blue GaN LED.
- Agre, Peter** (30 January 1949), American scientist. He received the Nobel Prize in Chemistry in 2003 for his discovery of aquaporins (a class of membrane proteins that form pores that are permeable to water molecules) in biological membranes.
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- 31 Richards, Theodore William** (31 January 1868–2 April 1928), American scientist. He perfected the methods for determining the atomic weights of the elements. The discovery of the existence of isotopes demonstrated that the ordinary atomic weight, despite its usefulness in chemical calculations, does not represent fundamental physical data. He was the winner of the Nobel Prize in Chemistry in 1914.
- Langmuir, Irving** (31 January 1881–16 August 1957), American scientist. He is known for his studies of the use of gases in light bulbs, the development of the theory of electrovalence, and the discovery of monomolecular films (Langmuir–Blodgett films). He also designed a molecular pump, a predecessor to mercury vapor and oil diffusion vacuum pumps. He was awarded the Nobel Prize in Chemistry in 1932 for his discoveries in the field of surface chemistry.
- Mössbauer, Rudolf Ludwig** (31 January 1929–14 September 2011), German scientist. He is known for his research on the resonant absorption of gamma rays. In 1957, he discovered the effect of nuclear resonance, which now bears his name. He was awarded the Nobel Prize in Physics in 1961.
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