

January

1



b. 1852 Eugène A. Demarçay discovered europium (Eu, 63) 1901; gave spectroscopic proof of discovery of radium (Ra, 88); vacuum studies of volatility and low temperatures followed by high temperature spark spectra.

- Aluminum Company of America (ALCOA) renamed 11/12/1906, effective 1/1/1907; originally Pittsburgh Reduction Company, founded 9/18/1888.
- Merck & Co. founded 1891.
- Rhodia established from merger of Rhône-Poulenc's divisions of chemicals, fibers and polymers; originally Société Chimique des Usines du Rhône founded in 1895.
- First issue of *Chemical Abstracts*, 1907.
- Harold C. Urey and George Murphy announced existence of deuterium (D, 1), heavy isotope of hydrogen (H, 1), 1932.

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b. 1765 Charles Hatchett discovered niobium (Nb, 41), formerly columbium, 1801, from columbite.



b. 1822 Rudolph Clausius established foundations for modern thermodynamics; First stated the basic idea of the second law of thermodynamics using it in showing that for a 'Carnot cycle', which transmits heat between two heat reservoirs at different temperatures and at the same time converts heat into work, the maximum work obtained from a given amount of heat depends solely upon the temperatures of the heat reservoirs and not upon the nature of the working substance.



b. 1889 Roger Adams, a researcher in organic chemical synthesis; Department Head of Chemistry at the University of Illinois from 1926 -1954, and greatly influenced graduate education in America. He directed 184 doctoral theses.



b. 1920 Isaac Asimov, biochemist & science fiction author.

- US Atomic Energy took over from wartime Manhattan Engineer Commission District, 1947.

1

3



b. 1916 Keith James Laidler; researcher in chemical kinetics and history of physical chemistry.

- Henry W. Bradley, Binghamton, NY, patent on oleomargarine (U.S. [Patent No. 110,626](#)), 1871.

4



b. 1737 Louis-Bernard Guyton de Morveau (Louis-Bernard Guyton-Morveau) chemical nomenclature with Claude Louis Berthollet, Antoine François, comte de Fourcroy, and Antoine Lavoisier



b. 1905 Aristid V. Grosse isolated protactinium (Pa, 91) (1927) metal (1934) from pentoxide isolated in 1927; researcher on uranium-235 fission by slow neutrons with Alfred Nier, E. J. Booth & J. R. Dunning, 1940.

- Henry H. Dow prepared bromine from brine, 1891.
- Benjamin Rush began series of lectures on chemistry for the people of Philadelphia, 1775.

5



b. 1874 Joseph Erlanger; research in electrophysiology of nerves; Nobel Prize in Physiology or Medicine (1944) for their discoveries relating to the highly differentiated functions of single nerve fibers with Herbert Spencer Gasser.

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b. 1872 John V. N. Dorr, inventor & chemical engineer; developed the Dorr classifier for extracting ore, which became a practical method for the separation and chemical treatment of fine solids suspended in liquid.

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b. 1794 Eihardt Mitscherlich researcher on crystalline structure, catalysis, benzene & its derivatives; discovered isomorphism.



b. 1833 Henry E. Roscoe, researcher on the chemical action of light; invented actinometer with Robert Bunsen, 1856; first to isolate vanadium (V, 23), 1869.

2



b. 1941 John E. Walker, studied amino acid sequences in protein units of ATP synthetase Nobel Prize in Chemistry (1997) with Paul D. Boyer for elucidation of the enzymatic mechanism underlying the synthesis of adenosine triphosphate (ATP) and Jens C. Skou for the first discovery of an ion-transporting enzyme, Na^+ , K^+ -ATPase.

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• **J. A. Veatch**, discovered borax in mineral water at Tuscan Springs, California, 1856.

9



b. 1868 Søren P. L. Sørensen, "Father of pH"; researcher on proteins, amino acids, enzymes & hydrogen ion concentrations.

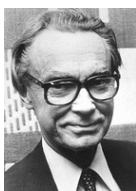


b. 1922 H. Gobind Khorana, first to synthesize an artificial gene; interpretation of genetic code & protein synthesis function; Nobel Prize in Physiology or Medicine (1968) with Marshall W. Nirenberg & Robert W. Holley for their interpretation of the genetic code and its function in protein synthesis.

10



b. 1877 Frederick G. Cottrell, researcher in nitrogen fixation, liquefaction of gases, & recovery of helium; invented electrostatic (Cottrell) precipitator for precipitation of particles from gases.

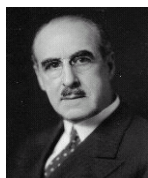


b. 1916 Sune K. Bergström, shared the Nobel Prize in Physiology or Medicine 1982 with Bengt I. Samuelsson and John R. Vane for their discoveries concerning prostaglandins and related biologically active substances.

- Eagle-Picher Industries incorporated, 1867.
- ACS published the first issue of *Industrial and Engineering Chemistry Edition*, 1923. The News Edition was published on the 10th and 20th of each month and was included with the other ACS publications as part of the ACS dues package. On January 10, 1942, the magazine was first published as *Chemical and Engineering News* (CE&N). A history of the magazine appeared in the January 12, 1998 issue of *CEN* (the 75th anniversary issue).

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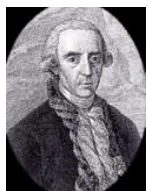
b. 1875 Frederick M. Becket, inventor in electrochemistry & electrometallurgy; received more than one hundred patents covering a wide range of electric furnace and chemical products, notably ferro-alloys, calcium carbide, and special chromium steels.

b. 1924 Roger Guillemin, function and synthesis of hypothalamic hormones; [Nobel Prize in Physiology or Medicine](#) (1977) with Andrew V. Schally for their discoveries concerning the peptide hormone production of the brain and Rosalyn Yalow for the development of radioimmunoassays of peptide hormones.

12



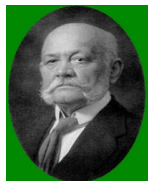
b. 1579 Jan Baptist Van Helmont, alchemist; proposed two basic elements, air and water; founder of pneumatic chemistry; coined term “gas”; isolated carbon dioxide as gas and discovered sylvestre.



b. 1716 Antonio de Ulloa discovered platinum with Jorge Juan (Pt, 78) (1748); established the first museum of natural history, the first metallurgical laboratory in Spain, and the observatory of Cadiz.



b. 1792 Johan August Arfwedson, discovered lithium (Li, 3) (1817) in the mineral, petalite.



b. 1848 Franz von Soxhlet, inventor of the Soxhlet Extractor; isolated lactose and proteins in milk.



b. 1899 Paul Hermann Müller; [Nobel Prize for Physiology or Medicine](#) (1948) for discovering the potent toxic effects on insects of DDT.



b. 1912 Konrad E. Bloch, who was born on this date, was a researcher on cholesterol and fatty acid metabolism. He shared the [Nobel Prize in Physiology or Medicine](#) in 1964 with Feodor Lynen for their discoveries concerning the mechanism and regulation of the cholesterol and fatty acid metabolism.



b. 1916 Ruth R. Benerito, first woman to win the Southern Chemist Award for research in cotton chemistry; researcher in fat emulsions and transport of fat in animal and wash- and- wear fabrics.

•Henry L. Smith took first x-ray photograph, 1896.

13



b. 1780 Pierre J. Robiquet discovered asparagine with Nicolas-Louis Vauquelin; codeine content of opium.

b. 1850 Charles F. Mabery, pioneer in petroleum chemistry & electrolytic aluminum & bromine industries.



b 1927 Sydney Brenner proved the impossibility of all overlapping triplet codes, which was circulated in an RNA Tie Club note, elucidated the complex symmetry and hundreds of submolecules that make up a virus, and showed that a specific set of genes trigger apoptosis (programmed cell death); In 2002, he shared The Nobel Prize in Physiology or Medicine with H. Robert Horvitz and John E. Sulston for their discoveries concerning 'genetic regulation of organ development and programmed

cell death.

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b. 1851 Rainer Ludwig Claisen developed reactions such as condensation of esters & rearrangement of allyl vinyl ethers; developed the Claisen flask and Claisen's rule that relates acidity to enolisation; research on tautomerism.

b. 1868 Francis D. Dodge, expert in chemistry of essential oils.

• Armstrong World Industries incorporated as Armstrong Cork Co., 1895.

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b. 1739 Pierre Samuel du Pont de Nemours, transformed explosive maker E. I. du Pont de Nemours into a diversified chemical producer. For biography:

http://www.heritage.dupont.com/floater/fl_pierresamuel/floater.shtml



b. 1785 William Prout suggested that all atomic weights were multiples of weight of hydrogen (Prout's Hypothesis); identified hydrochloric acid in the stomach.



b. 1895 Artturi Il Mari Virtanen, researcher on nutrition & development of food resources; nitrogen fixation; developed method for preserving silage; Nobel Prize in Chemistry (1945) for his research and inventions in agricultural and nutrition chemistry, especially for his fodder preservation method.



b. 1912 Frank H. Westheimer, researcher in physical organic chemistry & on the calculation of electric effects in chemistry; developed the idea of photoaffinity labelling of the active site of proteins.

- Henry Cavendish presented the quantitative composition of water before Royal Society, 1784.

16



b. 1767 Anders G. Ekeberg discovered tantalum (Ta, 73) 1802.



b. 1817 Thomas Antisell, Chemist and Civil War Surgeon; development of inks for paper currency, research on dextrin; the first president of the Chemical Society of Washington.

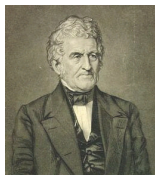
b. 1875 Leonor Michaelis, researcher in physical chemistry, in particular its use in biology and medicine; developed an equation (Michaelis-Menten) with Maude Leonora Menten that relates the velocity of enzyme catalyzed reactions to the concentration of reactants; discovered that keratin was soluble in thioglycolic acid & was a pioneer of the permanent wave.

- First isolation by ion exchange chromatography & identification of fermium (Fm, 100) with sample of only about 200 atoms at University of California, Berkeley, 1953.

17



b. 1706 Benjamin Franklin, researcher in electricity; inventor, statesman, described marsh gas to Priestley.



b. 1781 Robert Hare invented the oxyhydrogen blowtorch, 1801, and a voltaic battery having large plates, used for producing rapid and powerful combustion, called a deflagrator.

18



b. 1825 Edward Frankland, theory of valency (1852-60); authority on sanitation & river pollution; first synthesis of organometallic compound.



b. 1861 Hans Goldschmidt, invented the alumino-thermite process (Goldschmidt Process).

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b. 1813 Henry Bessemer, metallurgist, inventor of the Bessemer process and Bessemer converter for making steel (US patent 16,082).

b. 1885 Harry L. Fisher, inventor in field of rubber technology & synthetic rubber.

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b. 1758 Marie Anne Paulze Lavoisier, research assistant, collaborator, illustrator, editor, publisher, and spouse of Antoine Lavoisier; later spouse (but not collaborator) of Benjamin Thompson, Count Rumford. "I take down the observations and make the illustrations in his laboratory notebooks. "I am comfortable in English and Latin".

b. 1834 Adolph Frank made calcium cyanamide from calcium carbide & nitrogen, 1898.

• American Tobacco Company, incorporated, 1890.

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b. 1845 Edward Mallinckrodt, founder of Mallinckrodt Chemical Works.



b. 1912 Konrad E. Bloch, researcher on cholesterol & fatty acid metabolism; Nobel Prize in Chemistry (1964) with Feodor Lynen for their discoveries concerning the mechanism and regulation of the cholesterol and fatty acid metabolism.

• Dow Chemical Company, Freeport, TX, produced an ingot of magnesium (Mg, 12), the first commercial ingot of any metal ever to be extracted from seawater, 1941.

22



b. 1796 Karl K. Klaus discovered ruthenium (Ru, 44) (1844); pioneer in platinum chemistry. He lived to 96.

b. 1822 Henri Erni, teacher of chemistry, US consul in Switzerland.



b. 1917 William D. McElroy, who discovered the enzyme that makes fireflies glow; Head of National Science Foundation (1969-1972).



b. 1936 Alan J. Heeger, shared [Nobel Prize in Chemistry](#) (2000) with Alan G. MacDiarmid and Hidaki Shirakawa for their discovery and development of conductive polymers.

23

b. 1872 Paul Langevin, researcher on molecular structure of gases, analysis of secondary emission of X-rays from metals exposed to radiation and for his theory of magnetism



b. 1876 Otto Paul Hermann Diels developed the diene synthesis & practical method for making ring compounds from chain compounds (Diels-Alder Reaction); Nobel Prize in Chemistry (1950) with Kurt Alder for their discovery and development of the diene synthesis.



b. 1918 Gertrude B. Elion, researcher on the synthesis and development of therapeutic agents; Nobel Prize in Physiology or Medicine (1988) with James W. Black and George H. Hitchings for their discoveries of important principles for drug treatment.



b. 1929 John C. Polanyi, researcher using infrared chemiluminescence to follow the excited reaction products; [Nobel Prize in Chemistry](#) (1986) with Dudley R. Herschbach & Yuan T. Lee for their contributions concerning the dynamics of chemical elementary processes.

24



b. 1847 Joseph-Achille LeBel, first to present a theory on the relationship between molecules and how they absorb or reflect light; theorized (1874) that optical activity is due to an asymmetric carbon atom bound to four different groups; regarded as the cofounder of stereochemistry, with Jacobus H. van't Hoff

b. 1872 Morris W. Travers codiscovered krypton (Kr, 36) 1898, neon (Ne, 10) 1898, & xenon (Xe, 54) 1898, with William Ramsay; researcher on low temperature.

- Gold discovered at Sutter's Mill in northern California setting off the '49er Gold Rush, 1848.
- Beer first sold in cans, 1935.
- B. B. Cunningham, et al., made first reported observation of absorption spectrum of compound of einsteinium (Es, 99) at University of California, Berkeley, 1966.

25



b. 1627 Robert Boyle defined an element; discovered Boyle's Law; stated that matter was composed of corpuscles which themselves were differently built up of different configurations of primary particles; suggested alcohol as biological preservative.

b. 1865 William D. Horne, innovator in refining & manufacturing of sugar.



b. 1917 Iya Prigogine, researcher in irreversible processes; Nobel Prize in Chemistry (1977) for his contributions to non-equilibrium thermodynamics, particularly the theory of dissipative structures.



b. 1923 Arvid Carlsson shared Nobel Prize in Physiology and Medicine (2000) with Paul Greengard for their discoveries concerning signal transduction in the nervous system and Eric R. Kandel for discoveries of how efficiency of synapses can be modified and molecular mechanisms take part in memory.

- Martin H. Klaproth reported to the Berlin Academy of Sciences, 1798, the discovery of a new element by Müller von Reichenstein in 1782 & named it tellurium (Te, 52).

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b. 1881 Claude S. Hudson, researcher in chemistry of sugars.

- Niels Bohr reported the discovery of nuclear fission by Otto Hahn & Fritz Strassman at Fifth Washington Conference on Theoretical Chemistry, 1939.

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b. 1870 Louis A. Kahlenberg, studied solutions, dialysis, gas electrodes, and the activation of gases by metals; investigated potentiometric titrations, boric acid in the treatment of blood poisoning, the use of colloidal gold in treatment of malignancies, and the use of dichloroacetic acid in medicine; his criticisms of Arrhenius' theory of ionization led to Debye's and Hückel's modifications of the theory to account for the electrical interactions of the ions.

- F. August Kekulé presented his benzene structure to Société Chimique, Paris, 1865.
- Chevron incorporated, 1926.

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b. 1843 Henry C. Bolton, writer & bibliographer of history of chemistry; studied the action of organic acids on minerals.

b. 1922 Robert W. Holley, research in the biosynthesis of proteins; discovery of alanine transfer RNA ; Nobel Prize in Physiology or Medicine (1968) with H. Gobind Khorana & Marshall W. Nirenberg for their interpretation of the genetic code and its function in protein synthesis.

b. 1929 Edith Marie Flanigan, developed molecular sieves as catalysts; Perkin Medal, 1992.

29



b. 1838 Edward W. Morley performed ether drift experiments with Albert A. Mickelson; Michelson–Morley experiment proved that luminiferous aether or ether did not exist; made extremely accurate determination of combining weights of hydrogen (H, 1) & oxygen (O, 8).

b. 1880 Herbert Max Finlay Freundlich, colloids (stabilization by electrolytes) and surfaces (Freundlich adsorption isotherm).

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b. 1862 George G. Henderson, researcher on catalysis.

b. 1891 Harold S. Booth, researcher in inorganic chemistry, particularly fluoride gases.



b. 1949 Peter Agre who shared the Nobel Prize in Chemistry (2003) with Roderick MacKinnon, was born on this date. He was awarded it for the discovery of water channels.

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b. 1868 Theodore W. Richards, researcher on atomic weights, electrochemistry, & thermodynamics; discovered isotopes of lead from uranium & thorium, 1913; Nobel Prize in Chemistry (1914) in recognition of his accurate determinations of the atomic weight of a large number of chemical elements.



b. 1881 Irving Langmuir, research on surface chemistry, introduced gas-filled tungsten lamps & use of atomic hydrogen blowpipe for welding; invented condensation pump for producing high vacuum; evolved electronic theory with Gilbert N. Lewis; [Nobel Prize in Chemistry](#) (1932) for his discoveries and investigations in surface chemistry.

•The first paper on the solid phase synthesis of peptides by R. B. Merrifield was received on this date by the *Journal of the American Chemical Society* [85, 2149 (1963)].