
CHRONICLES

Notable and Anniversary Dates in Biochemistry for 2008

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DOI: 10.1134/S0006297908030206

- 250th anniversary of the printing in Latin of a doctoral dissertation *De acido vegetabili (On Plant Acid)* (Leiden, 1758) by the Russian Professor of Medicine K. I. Shchepin (1728-1770).
- 200th anniversary of the discovery of a law of volume ratios (the Gay-Lussac law), which is a principal law of stoichiometry (J. L. Gay-Lussac, 1778-1850).
- 200th anniversary of the discovery by Proust of the law of composition constancy (J. L. Proust, 1754-1826).
- 200th anniversary of the printing of the book *The Approach for Producing Mineral Healing Waters Based on the New Chemical Discoveries and Medical Observations* (I. G. Kashinsky, 1772-1846).
- 125th anniversary of the method for quantitative determination of nitrogen in organic compounds (the Kjeldahl method) and of apparatus for determination of nitrogen in small quantities (the Kjeldahl apparatus) (J. Kjeldahl, 1849-1900).
- 125th anniversary of the hypothesis about the association between hereditary factors and chromosomes (W. Roux, 1850-1924).
- 125th anniversary of the formulation by Rubner of the isodynamic law that the fundamental food components (fats, proteins, and carbohydrates) are interchangeable in metabolism by calorific value in metabolism (M. Rubner, 1854-1932).
- 100th anniversary of the genetic hypothesis proposed by the English physician Garrod about the origin of hereditary metabolic diseases (A. E. Garrod, 1857-1937).
- 100th anniversary of the staining of histological preparations for detecting DNA and RNA (the Unna-Pappenheim method) (P. G. Unna, 1850-1929; A. Pappenheim, 1870-1917).
- 75th anniversary of the Embden-Meyerhof first scheme of glycolysis and fermentation (G. Embden, 1874-1933; O. Meyerhof, 1884-1951).
- 50th anniversary of the study by B. A. Kudryashov with colleagues of the reflectory-humoral anticoagulating system responsible for the liquid state of blood in the body (B. A. Kudryashov, 1909-1993).
- January 31 – 100th anniversary of the death of Karl Voit (1831-1908), German physiologist who studied metabolism in the body. He was the first to systematize the doctrine about nutrition, developed norms of hygienic nutrition, formulated the main requirements for food (sufficient contents of all nutrients in the correct ratio, and sufficient assimilability); he is known by his services in studies of gas exchange and metabolism of nitrogen (proteins) and nitrogen-free (carbohydrates and fats) nutrients; together with M. Pettenkofer he contributed to elucidation of roles of fats, proteins, and carbohydrates in energy generation in the body. He wrote valuable works about nitrogen balance and a guidebook on physiology of metabolism (Russian translation, 1881, St. Petersburg), founded a scientific school, edited *Zeitschrift für Biologie* (1865, jointly with M. Pettenkofer). Bibliography and literature: see Great Medical Encyclopedia and Great Soviet Encyclopedia, Third Editions.
- March 3 – 90th anniversary of the birth of A. Kornberg (1918), American biochemist. He discovered and studied an enzyme known as Kornberg's DNA polymerase. Using natural DNA as a primer, he developed a hypothesis about the DNA replication in the intact cell. The Nobel Prize winner for discovery of the mechanism of nucleic acid biosynthesis (1959). Bibliography and literature: see Great Medical Encyclopedia, Third Edition; *Les Prix Nobel en 1959*, Stockholm, 1960; Riedman, S. R., and Gustafson, E. T. (eds.) *Portraits of Nobel Laureates in Medicine and Physiology*, London-New York, 1963.

April 6 – 80th anniversary of the birth of J. Watson (1928), American biochemist, specialist in molecular biology, member of the USA National Academy of Sciences (1962). He created a three-dimensional model of the DNA molecule and studied its chemical structure (jointly with F. Crick) that allowed them to explain the description of genetic information in DNA molecules and propose a hypothesis about its replication. In 1962, he won the Nobel Prize in Physiology and Medicine for “discoveries in molecular structure of nucleic acids and determination of their roles for information transmission in living matter” (jointly with F. Crick and M. Wilkins). Bibliography and literature: *The Double Helix*, 1968; *Molecular Biology of the Cell*, 1983; Great Medical Encyclopedia, Third Edition; *The Nobel Prize Winners*, in the *Encyclopedia* (1992), Progress, Moscow; *New York Times*, December, 1984.

July 26 – 100th anniversary of the birth of Mikhail Mikhailovich Shemyakin (1908-1970, born in Moscow), Russian bioorganic chemist, Academician of the Academy of USSR Academy of Sciences. From 1945-1959, he worked in the Institute of Biological and Medical Chemistry, the USSR Academy of Medical Sciences, and concurrently from 1957-1959 in the Institute of Organic Chemistry, the USSR Academy of Sciences. From 1959, he was Director of the Institute of Natural Compound Chemistry, the USSR Academy of Sciences, created by his initiative (now Shemyakin and Ovchinnikov Institute of Bioorganic Chemistry, Russian Academy of Sciences). In his works, problems of theoretical organic chemistry and natural compound chemistry were considered. M. M. Shemyakin created the general theory of pyridoxal-dependent enzyme action (in co-authorship with A. E. Braunstein), contributed to biochemistry of vitamin K and antibiotics. His works became a basis for development of chemistry of membrane-active complexes as a new field in bioorganic chemistry. Bibliography and literature: see Great Medical Encyclopedia, Third Edition; *M. M. Shemyakin (1908-1970)*, by G. N. Finashina and N. M. Anserova, Moscow, 1978.

September 6 – 75th anniversary of the death of Vladimir Sergeevich Gulevich (1867-1933, born in Ryazan), Russian biochemist, Academician (1929). His main works were in the field of extractive substances of animal body organs and tissues and in chemistry of amino acids and proteins. Jointly with his coworkers, he detected in skeletal muscles carnosine, carnitine, and methylguanidine. Approaches developed by him allowed him and his coworkers to prepare a number

of new amino acids and new derivatives. He proposed a method for quantitative determination of mercury, platinum, gold, and chlorine in the same specimen with preserving organic substances; discovered a new type of complex organic compounds. Bibliography and literature: see Great Medical Encyclopedia, Second and Third Editions; Great Soviet Encyclopedia, Third Edition.

October 8 – 125th anniversary of the birth of Otto Warburg (1883-1970), German biochemist and physiologist, member of the London Royal Society. From 1930, he was Chief of the Institute of Physiology in Berlin. From 1917-1920 he developed a manometric method for investigations of respiration and glycolysis of tissue slices, in 1923-1925 studied metabolism of tumor tissues, in 1932-1933 described a yellow respiratory enzyme, in 1935-1937 for the first time crystallized flavin (lumiflavin), and discovered a hydrogen-transporting enzyme. In his works, problems of photosynthesis and fermentation chemistry were considered. He constructed an apparatus for studies of tissue respiration, fermentation, and enzymatic reactions (Warburg apparatus). The Nobel Prize winner in Medicine for studies on iron-containing enzymes (1931). Bibliography and literature: see Great Medical Encyclopedia and Great Soviet Encyclopedia, Third Editions; *The Nobel Prize Winners*, in the *Encyclopedia* (1992), Progress, Moscow.

October 26 – 95th anniversary of the birth of Il'ya Borisovich Zbarskii (1913, born in the town of Kamenets-Podolskii), Russian biochemist, Academician of Russian Academy of Medical Sciences. He was an organizer and chief of the biochemical laboratory in the Herzen Institute of Oncology (1945-1959), in 1956-1980 he was leader of the laboratory of cell structure biochemistry in the Institute of Animal Morphology, the USSR Academy of Sciences (now Institute of Developmental Biology, Russian Academy of Sciences), from 1989 he has been a counselor of the directory of this institute. He organized and during 1964-1967 led the Chair of Medical Chemistry in the Central Institute for Advancement of Physicians (now Russian Medical Academy of Post-Graduate Education). He studied biochemistry of proteins and nucleic acids in normal and tumor cells and cell structures. In 1979, I. B. Zbarskii with coworkers discovered an ability of non-histone proteins to produce nonchromatin structures (nuclear templates). He studied high-molecular-weight proteins of nuclear template; was a creator of a scientific school in biochemistry and genetic apparatus of the cell nucleus. Bibliography and literature: see Great Medical Encyclopedia, Third Edition; *The*

Cell Nucleus Organization, Meditsina, Moscow, 1988; *B. I. Zbarskii (1885-1954)* (jointly with P. F. Nikolaev), Moscow, 1990; *Skeletal Structures of the Cell Nucleus* (with colleagues), Nauka, Moscow, 1991; *For the 70th Anniversary of Prof. I. B. Zbarskii* (1984) *Vopr. Med. Khim.*, No. 1, 141-142; *I. B. Zbarskii (85th Anniversary of the Birth)* (1998) *Vestn. Ros. Akad. Med. Nauk*, No. 10, 60-61; (2003) *Vestn. Ros. Akad. Med. Nauk*, No. 10, 58; *The 60th Anniversary of the Russian Academy of Medical Sciences*, Moscow, 2004, p. 375.

75 years of the death of G. Embden (1874-1933), German biochemist. From 1914, he was Professor

and Chief of the Chair of Biological Chemistry, Frankfurt University. He studied intermediary metabolism of carbohydrates, fats, and proteins, contributed to chemistry of muscle contraction, determined the role of lactic acid and phosphorus in muscle contraction. In 1933, he proposed a new scheme of anaerobic enzymatic destruction of carbohydrates, which, instead of early believed pathway through methylglyoxal, included phosphotrioses, phosphoglyceric and pyruvic acids. This scheme was important for development of modern concepts about destruction of carbohydrates during glycolysis and fermentation. Bibliography and literature: see Great Medical Encyclopedia, Third Edition.