

St. Elmo Brady

Chemical Genealogy

by
Vera V. Mainz & Gregory S. Girolami
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Afzelius, Johann 1753 - 1837

DEGREE: MS DATE: 1776 PLACE: Uppsala
TEACHER/RESEARCH ADVISOR: Bergman, T. O.

did mineral analyses (e.g., barium selenite); isolated formic acid from ants and showed it was different from acetic acid; studied chemistry of nickel and oxalic acid; teacher.

1. Partington, J. R. *A History of Chemistry*; Macmillan: 1962; vol. 3, p200.
2. *Svenskt Biografiskt Lexikon*; Albert Bonniers: 1918-1985; vol. 1, p218-224.

Bergman, Tobern Olof 1735 - 1784

DEGREE: PhD (mathematics) DATE: 1758 PLACE: Uppsala
TEACHER/RESEARCH ADVISOR: Ferner

introduced binomial nomenclature for salts; started new classification of minerals based upon chemical composition; wrote book on blow pipe analysis; founded quantitative inorganic analysis and developed quantitative methods to determine Ca, Pb, and sulfuric acid; introduced idea of constant combining proportions; studied chemistry of alum; drew up comprehensive tables of chemical affinities; discovered pyroelectric effect in tourmaline crystals; studied silicic acid solutions, zeolites, and hydrothermal recrystallization of quartz.

1. *Swedish Men of Science 1650-1950*; Lindroth, E., Ed.; Almqvist & Wiksell: 1952; p131-140.
2. *J. Chem. Ed.* **1940**, 17, 555-562.
3. Asimov, I. *Asimov's Biographical Encyclopedia of Science and Technology (2nd Ed.)*; Doubleday: 1982; p207.
4. Partington, J. R. *A History of Chemistry*; Macmillan: 1962; vol. 3, p179-199.
5. *Dictionary of Scientific Biography*; Charles Scribner's Sons: 1970-1990; vol. 2, p4-8.
6. *Crells Ann. Chem.* **1787**, 7, 74-96.
7. *A Biographical Dictionary of Scientists*; Williams, T. I., Ed.; Wiley: 1969; p49.
8. *Svenskt Biografiskt Lexikon*; Albert Bonniers: 1918-1985; vol. 3, p591-605.
9. *Biographie Medicale*; Bayle, G.-L.; Thillaye, J. B.-J., Eds.; B. M. Israel: 1967 Reprint; vol. 2, p607.
10. *Dictionnaire des Sciences Medicales Biographie Medicale*; C. L. F. Panoucke: 1820-1822; vol. 2, p170-176.
11. *Dictionnaire Historique de la Médecine*; Bechet Jeune: 1828-1839; vol. 1, p356-357.

Berzelius, Jons Jacob

1779 - 1848

DEGREE: MD

DATE: 1802

PLACE: Uppsala

TEACHER/RESEARCH ADVISOR: Afzelius

discovered Ce, Se, Si, and Th; first used the term "organic chemistry" and published first independent treatment of organic chemistry in 1827; first to electrolyze salts; invented series of electronegativities; suggested modern symbols for elements and invented modern chemical formulas; proposed words: isomerism, allotropy, catalysis, protein, polymer, halogen, and electronegative; proved law of definite proportions; generated first accurate list of atomic weights; invented the mercury cathode; discovered ammonium amalgam and pyruvic acid; studied chemistry of silicic acid; extensively investigated fluorides of many elements; analyzed meteorites and concluded they were of extraterrestrial origin.

1. *Dictionary of Scientific Biography*; Charles Scribner's Sons: 1970-1990; vol. 2, p90-97.
2. *Great Chemists*; Farber, E., Ed.; Interscience: 1961; p385-402.
3. Asimov, I. *Asimov's Biographical Encyclopedia of Science and Technology (2nd Ed.)*; Doubleday: 1982; p288-289.
4. Partington, J. R. *A History of Chemistry*; Macmillan: 1964; vol. 4, p142-177.
5. Jaffe, B. *Crucibles*; Tudor Publ. Co.: 1930; p136-156.
6. Weeks, M. E. *Discovery of the Elements (7th Ed.)*; Leicester, H. M., Ed.; J. Chem. Ed.: 1968; p305-317.
7. *Swedish Men of Science 1650-1950*; Lindroth, E., Ed.; Almqvist & Wiksell: 1952; p160-171.
8. Tilden, W. A. *Famous Chemists*; Routledge & Sons: 1921; p131-151.
9. *A Biographical Dictionary of Scientists*; Williams, T. I., Ed.; Wiley: 1969; p55-56.
10. *Chem. Ind. (London)* **1948**, 474-476.
11. *Am. J. Sci.* **1853**, *16*, 1-15, 173-186, 309-313, and **1854**, *17*, 103-113.
12. *Am. J. Sci.* **1848**, *6*, 448-451.
13. *Acta Chem. Scand.* **1948**, *2*, 539.
14. *Z. Angew. Chem.* **1930**, *43*, 325-329, 351-354, and 366-370.
15. *J. Chem. Ed.* **1948**, *25*, 500-505.
16. *Das Buch der Grossen Chemiker*; Bugge, G., Ed.; Verlag Chemie: 1929; vol. 1, p428-449.
17. Berzelius, J. J. *J. J. Berzelius Selbstbiographische Aufzeichnungen*; Soderbaum, H. G., Ed.; H. G. Soderbaum: 1903.
18. Soderbaum, H. G. *Jac. Berzelius, Levnadsteckning*; Almqvist & Wiksells: 1929-31.
19. Jorpes, J. E. *Jac. Berzelius. His Life and Work*; University of California Press: 1970.

Brady, St. Elmo

1884 - 1966

DEGREE: PhD

DATE: 1916

PLACE: Illinois

TEACHER/RESEARCH ADVISOR: Derick

First African American to obtain a Ph.D. degree in chemistry in the US; he went on to serve in leadership roles at four historically black college and universities (HBCUs): Tuskegee, Howard University, Fisk University, and Tougaloo College. At Tuskegee, Brady served as Head of the Division of Science, developed the undergraduate program in chemistry, and in 1917 published the monograph *Household Chemistry for Girls*. At Howard University, he served as the Chair of the Chemistry Department, developed a strong undergraduate program in chemistry, laid the foundation for the present graduate program and planned a new chemistry building. At Fisk University, Brady

served as Chair of the Chemistry Department, developed the undergraduate program, founded the first graduate program in chemistry at an HBCU, and coordinated the building of the first modern chemistry building at an HBCU (later named Talley-Brady Hall – Thomas W. Talley was a pioneer in teaching chemistry at Fisk). At Tougaloo he helped build the chemistry program. During his career he published papers on the phytochemicals in the seed of the magnolia, the reactions of ricinoleic acid, and the preparation of 1,1-dichloroheptane.

1. "St. Elmo Brady (1884-1966)" http://www.chemistry.illinois.edu/about/illini_chemists/brady.html Accessed 8 May 2017.
2. Massie, S. P. "St. Elmo Brady. The Lengthened Shadow." *Chemistry* **1970**, 43(10), 7.
3. Massie, S. P. "St. Elmo Brady, A Pioneer." *Boule* **Fall 1979**, 42(3), 12, 56.
4. *Crisis* **August 1916**, 190-191.
5. Martin, D. F. and Martin, B. B. "St. Elmo Brady (1884-1966). Pioneering Black Academic Chemist." *Florida Scient.* **2006**, 69(2), 116-123.
6. Moton, R. R. *Progress of a Race; or the Remarkable Advancement of the American Negro, from the Bondage of Slavery, Ignorance, and Poverty of the Freedom of Citizenship, Intelligence, Affluence, Honor and Trust*. J. L. Nichols & Co.: Naperville, IL, 1920; p337.
7. Woodson, H. W. "The Present Status of Chemistry in Negro Colleges." *J. Chem. Educ.* **1940**, 17(3), 111-116.
8. Greene, H. W. *Holder of Doctorates among American Negroes; An Educational and Social Study of Negroes Who Have Earned Doctoral Degrees in Course, 1876-1943*. Meador Publishing Co.: Boston, MA, 1946. Specific information: p31, p140.
9. Jay, J. M. *Negroes in Science: Natural Science Doctorates, 1876-1969*. Balamp Publishing: Detroit, MI, 1971; p46.
10. Garrett, R. B. *Famous First Facts About Negroes*. Arno Press: New York, NY, 1972; p172.
11. Young, H. A. *Black American Science Doctorates: Some Characteristic Comparisons and Contrasts with American Science Doctorates*. Dissertation for Specialist in Education Degree, University of Louisville, 1973.
12. Moton, R. R. *Progress of a Race; or the Remarkable Advancement of the American Negro, from the Bondage of Slavery, Ignorance, and Poverty of the Freedom of Citizenship, Intelligence, Affluence, Honor and Trust*. J. L. Nichols & Co.: Naperville, IL, 1920; p337.
13. Brady, St. Elmo *Household Chemistry for Girls*. Tuskegee Normal and Industrial Institute: Tuskegee, AL, 1916.
14. "St. Elmo Brady." *Notable Scientists from 1900 to the Present*, edited by Brigham Narins, Gale, 2008. *Biography in Context*, link.galegroup.com/apps/doc/K1619001560/BIC1?u=uiuc_uc&xid=24944d22. Accessed 17 May 2017.
15. "St. Elmo Brady (1884-1966): First African American to Receive a Ph.D. in Chemistry" <https://www.acs.org/content/acs/en/education/whatischemistry/landmarks/noyeslaboratory.html#st-elmo-brady-biography> Accessed 2 May 2017.
16. "St. Elmo Brady." https://en.wikipedia.org/wiki/St._Elmo_Brady Accessed 2 May 2017.
17. "Brady, St. Elmo (1884-1966)" <http://www.blackpast.org/aah/brady-saint-elmo-1884-1966> Accessed 2 May 2017.
18. "St. Elmo Brady." <https://www.chemheritage.org/historical-profile/st-elmo-brady> Accessed 2 May 2017.
19. "St. Elmo Brady." <https://www.acs.org/content/acs/en/education/whatischemistry/african-americans-in-sciences/st-elmo-brady.html> Accessed 2 May 2017.
20. "St. Elmo Brady." <http://www.african-american-scientists.com/bios/st-elmo-brady.html>. Accessed 2 May 2017.
21. "St. Elmo Brady." <https://webfiles.uci.edu/mcbrown/display/brady.html> Accessed 2 May 2017.
22. "St. Elmo Brady." <https://prezi.com/b05vcvqeel5l/st-elmo-brady/> Accessed 2 May 2017.
23. "St. Elmo Brady (1884-1966)" http://www.biography-center.com/biographies/6967-Brady_St_Elmo.html Accessed 2 May 2017.
24. "St. Elmo Brady." *World of Chemistry*, Gale, 2006. *Biography in Context*, link.galegroup.com/apps/doc/K2432100053/BIC1?u=uiuc_uc&xid=433aca48. Accessed 17 May 2017.
25. "St. Elmo Brady." *Contemporary Black Biography*, vol. 107, Gale, 2013. *Biography in Context*, link.galegroup.com/apps/doc/K1606005903/BIC1?u=uiuc_uc&xid=c59329a0. Accessed 17 May 2017.
26. "Dr. Brady, 82, Dies; Ex-Howard Professor." *Washington Star*, 30 Dec. 1966.

Brucaeus, Henricus

1531 - 1593

DEGREE: none

DATE: 1550 ca.

PLACE: College Royal, Paris

TEACHER/RESEARCH ADVISOR: Ramus

professor of mathematics and medicine; wrote texts on the plague, scurvy, and the mathematics of spheres and motion.

FOOTNOTE: Brucaeus received an honorary MD degree in Bologna in about 1560.

1. *Biographie Nationale de Belgique*; Emile Bruylant: 1866-1986; vol. 3-4, p105.
2. *Biographisches Lexikon der hervorragenden Ärzte*; Urban & Schwarzenberg: 1962; vol. 1, p727.
3. *Michaud Biographie Universelle (2nd Ed.)*; Delagrabe: 1843-1865; vol. 5, p661.
4. *Allgemeine Deutsche Biographie*; Duncker & Humblot: 1967-1971 Reprint; vol. 3, p374-375.
5. *Nouvelle Biographie Generale*; Firmin, Didot Freres: 1852-1866; vol. 7, col 559-560.
6. *Biographie Medicale*; Bayle, G.-L.; Thillaye, J. B.-J., Eds.; B. M. Israel: 1967 Reprint; vol. 1, p283.
7. *Dictionnaire des Sciences Medicales Biographie Medicale*; C. L. F. Panoucke: 1820-1822; vol. 3, p10.

Bucquet, Jean Baptiste Michel

1746 - 1780

DEGREE: MD

DATE: 1770

PLACE: Paris

TEACHER/RESEARCH ADVISOR: Rouelle

analyzed zeolite; first to teach Lavoisier's theories in France; collaborator with Lavoisier from 1777; first detailed accounts on plant chemistry; showed CO₂ was acidic; analyzed opium; discovered morphine; studied chemistry of NH₄Cl and arsenic salts; analyzed blood and isolated fibrin.

FOOTNOTE: While Lavoisier had no students per se, Bucquet and Lavoisier collaborated early in both their careers. Lavoisier's ideas had a major impact on Bucquet and vice versa.

1. *Ambix* **1966**, 13, 74-83.
2. *Ambix* **1989**, 36, 5-13.
3. *Dictionary of Scientific Biography*; Charles Scribner's Sons: 1970-1990; vol. 2, p572-573.
4. Partington, J. R. *A History of Chemistry*; Macmillan: 1962; vol. 3, p103-104.
5. *Michaud Biographie Universelle (2nd Ed.)*; Delagrabe: 1843-1865; vol. 6, p107.
6. *Nouvelle Biographie Generale*; Firmin, Didot Freres: 1852-1866; vol. 7, col 714-715.
7. *Biographie Medicale*; Bayle, G.-L.; Thillaye, J. B.-J., Eds.; B. M. Israel: 1967 Reprint; vol. 2, p707-708.
8. *Dictionnaire des Sciences Medicales Biographie Medicale*; C. L. F. Panoucke: 1820-1822; vol. 3, p39-41.
9. *Dictionnaire Historique de la Médecine*; Bechet Jeune: 1828-1839; vol. 1, p553-554.

Camerarius, Elias Rudolph, Jr.

1673 - 1734

DEGREE: MD

DATE: 1691

PLACE: Tübingen

TEACHER/RESEARCH ADVISOR: Camerarius, E., Sr.

professor of medicine; wrote a history of the epidemic fever; proposed a new system of physiology;

despite great scholarship and his skepticism of the work of others, Camerarius was an exceptionally credulous man who devoted himself zealously to mysticism and the secret arts - he opposed innovation and progress and was especially hostile to the iatrophysical methods then being developed for the treatment of disease.

1. *Biographie Medicale*; Bayle, G.-L.; Thillaye, J. B.-J., Eds.; B. M. Israel: 1967 Reprint; vol. 2, p177-178.
2. *Michaud Biographie Universelle (2nd Ed.)*; Delagrabe: 1843-1865; vol. 6, p474-475.
3. *Allgemeine Deutsche Biographie*; Duncker & Humblot: 1967-1971 Reprint; vol. 3, p719.
4. *Biographisches Lexikon der hervorragenden Ärzte*; Urban & Schwarzenberg: 1962; vol. 1, p809.
5. Haller, A. *Bibliotheca Medicina Practicae*; J. Schweighauser: 1776-1788; vol. 4, p92-96.

Camerarius, Elias Rudolph, Sr.

1641 - 1695

DEGREE: MD

DATE: 1663

PLACE: Tübingen

TEACHER/RESEARCH ADVISOR:

professor of medicine; wrote books on the palpitations of the heart, pleurisy, skull fractures, and the use of medicinal plants.

1. *Allgemeine Deutsche Biographie*; Duncker & Humblot: 1967-1971 Reprint; vol. 3, p719.
2. *Biographisches Lexikon der hervorragenden Ärzte*; Urban & Schwarzenberg: 1962; vol. 1, p808.
3. *Michaud Biographie Universelle (2nd Ed.)*; Delagrabe: 1843-1865; vol. 6, p474.

Derick, Clarence George Sr.

1883 - 1980

DEGREE: PhD

DATE: 1910

PLACE: Illinois

TEACHER/RESEARCH ADVISOR: Noyes, W. A.

At the University of Illinois, assistant in organic chemistry, 1908-1910, associate, 1910-1913, assistant professor, 1913-1916. Director of research, Schoellkopf Aniline & Chemical Company, Inc., Buffalo, New York, 1916-1917. National Aniline & Chemical Company, Buffalo, 1917-1921. Vice president By-Products Steel Corporation, Buffalo, 1924-1925. President Derick Laboratories, Inc., Buffalo, started in 1925. Consultant practice. Consulting chemist with the Bureau of Mines, at Edgewood Arsenal branch, Buffalo, during World War, in charge research on mustard gas.

Studied the reactions of lauroleone and the Hofmann rearrangement of methylaniline hydrochloride; classified molecular rearrangements of carbon compounds into true rearrangements and rearrangements with reactions; did a systematic study of the polarity of elements or radicals using a logarithmic function of the ionization constants; determined the molar conductance of organic electrolytes; studied the structure of the dihydro- β -naphthoic acids and trimethylene oxides; investigated the correlation of ionization and structure in unsaturated acids, the scale of influence of substituents in paraffin molecules of monobasic acids, and the correlation of ionization with structure; wrote on the contributions of chemists to the dye industry and the use of galvanizing sal ammoniac waste in the hot galvanizing fluxing process.

1. George Clarence Derick. https://prabook.com/web/clarence_george.derick/1105133 (accessed 28 August 2018).
2. George Clarence Derick Sr. <https://www.findagrave.com/memorial/69832036/clarence-george-derick> (accessed 28 August 2018).
3. Clarence G. Derick Papers, 1965-67. University of Illinois Archives. <https://archives.library.illinois.edu/archon/?p=collections/controlcard&id=3747> (accessed 28 August 2018).

Duhre, Anders Gabriel 1680 - 1739

DEGREE: none DATE: 1711 ca. PLACE: Uppsala
TEACHER/RESEARCH ADVISOR: Elvius

popularized teaching classes in Swedish; wrote one of the first textbooks on algebra in Swedish.

1. *Svenskt Biografiskt Lexikon*; Albert Bonniers: 1918-1985; vol. 11, p506-510.

Elvius, Petrus (the elder) 1660 - 1718

DEGREE: MA DATE: 1688 PLACE: Uppsala
TEACHER/RESEARCH ADVISOR: Hoffvenius

astronomer, mathematician; wrote textbooks on astronomical observation and logarithmic tables; designed a planetarium based on Copernican theory; pioneered giving lectures in Swedish rather than Latin; published and corrected almanacs.

1. *Svenskt Biografiskt Lexikon*; Albert Bonniers: 1918-1985; vol. 13, p418-422.

Ferrner, Bengt 1724 - 1802

DEGREE: none DATE: 1751 ca. PLACE: Uppsala
TEACHER/RESEARCH ADVISOR: Klingenstierna/Strömer

mathematician, astronomer, meteorologist; in charge of preparing for the observation of the transit of Venus in 1761 and Halley's comet in 1759; specialized in the design of astronomical instruments; served as an industrial spy for the Swedish king while in England.

1. *Svenskt Biografiskt Lexikon*; Albert Bonniers: 1918-1985; vol. 15, p635-644.

Fittig, Wilhelm Rudolph

1835 - 1910

DEGREE: PhD

DATE: 1858

PLACE: Göttingen

TEACHER/RESEARCH ADVISOR: Limpricht

discovered pinacol, mesitylene, diacetyl, and biphenyl; studied action of sodium on ketones and hydrocarbons; discovered Fittig reaction for the synthesis of alkylbenzenes; proposed quinoid (diketone) structure of benzoquinone; isolated phenanthrene from coal tar; discovered and synthesized the first lactones; established constitution of piperine; investigated structures of naphthalene and fluorene.

1. *Dictionary of Scientific Biography*; Charles Scribner's Sons: 1970-1990; vol. 5, p12-13.
2. Partington, J. R. *A History of Chemistry*; Macmillan: 1964; vol. 4, p767-768.
3. *A Biographical Dictionary of Scientists*; Williams, T. I., Ed.; Wiley: 1969; p182.
4. *J. Chem. Soc. Trans.* **1911**, 99, 1651-1653.
5. *Chem. Ber.* **1911**, 44, 1339-1351.
6. *Am. Chem. J.* **1911**, 45, 210-215.
7. *Neue Deutsche Biographie*; Duncker & Humblot: 1953-1990; vol. 5, p217.
8. *Chem. Ztg.* **1910**, 34, 1277-1278.

Fourcroy, Antoine François de

1755 - 1809

DEGREE: MD

DATE: 1780

PLACE: Paris

TEACHER/RESEARCH ADVISOR: Bucquet

important advocate of Lavoisier's views; co-discovered iridium (with Vauquelin); investigated chemistry of urea and chlorine; co-founded modern chemical nomenclature; carried out quantitative analyses of mineral waters; analyzed bone, milk, urinary calculi, and gallstones; showed that muscles contain a large proportion of nitrogen; studied (with Vauquelin) chemistry of metal sulfites and phosphites; showed (with Thenard) that mercury exists in two oxidation states; showed that sulfuric acid can act as a desiccant.

1. Asimov, I. *Asimov's Biographical Encyclopedia of Science and Technology (2nd Ed.)*; Doubleday: 1982; p246-247.
2. Partington, J. R. *A History of Chemistry*; Macmillan: 1962; vol. 3, p535-551.
3. *A Biographical Dictionary of Scientists*; Williams, T. I., Ed.; Wiley: 1969; p189-190.
4. *Dictionary of Scientific Biography*; Charles Scribner's Sons: 1970-1990; vol. 5, p89-93.
5. *Endeavour* **1959**, 18, 70-74.
6. *Mem. Classe Sci. Math. Phys. l'Inst. Imp. Fr.* **1810**, 11, xcvi-cxxviii.
7. *Michaud Biographie Universelle (2nd Ed.)*; Delagrave: 1843-1865; vol. 15, p367-371.
8. *Biographie Medicale*; Bayle, G.-L.; Thillaye, J. B.-J., Eds.; B. M. Israel: 1967 Reprint; vol. 2, p781-788.
9. Smeaton, W. A. *Fourcroy, Chemist and Revolutionary*; Heffer: 1962.
10. Cuvier, G. *Eloges Historiques*; E. Ducrocq: 1834; p101-138.
11. Mangin, A. *Les Savants Illustres de la France*; Ducrocq: 1865; p261-272.
12. *Das Buch der Grossen Chemiker*; Bugge, G., Ed.; Verlag Chemie: 1929; vol. 1, p356-368.
13. Kersaint, G. *Antoine-Francois de Fourcroy, 1755-1809, sa vie et son oeuvre*; Editions du Muséum: 1966.
14. *Dictionnaire des Sciences Medicales Biographie Medicale*; C. L. F. Panoucke: 1820-1822; vol. 4, p222-230.

Glaser, Christophle

1615 - 1678

DEGREE: MD

DATE: 1640 ca.

PLACE: Basel

TEACHER/RESEARCH ADVISOR:

Professor at Jardin du Roi; described preparation of arsenic trichloride, bismuth oxynitrate, and potassium sulfate (glaserite); imprisoned in the Bastille for supplying arsenic to Sainte-Croix, who poisoned the Marchioness de Brinvilliers.

1. Partington, J. R. *A History of Chemistry*; Macmillan: 1962; vol. 3, p24-26.
2. *J. Chem. Ed.* **1942**, 19, 53-60.
3. *Dictionary of Scientific Biography*; Charles Scribner's Sons: 1970-1990; vol. 5, p417-418.
4. *Chymia* **1965**, 10, 25-52.
5. *Dictionnaire des Sciences Medicales Biographie Medicale*; C. L. F. Panoucke: 1820-1822; vol. 4, p437-438.

Gmelin, Johann Friedrich

1748 - 1804

DEGREE: MD

DATE: 1769

PLACE: Tübingen

TEACHER/RESEARCH ADVISOR: Gmelin, P. F.

apothecary, chemist, botanist, and physician; advocate of the phlogiston theory and opponent of Lavoisier; explored synthesis of metallic alloys, especially of transition metals; wrote many textbooks, esp. on pharmacy, mineralogy, poisons, technical chemistry, botany, and the history of chemistry.

1. Hufbauer, K. *The Formation of the German Chemical Community (1720-1795)*; University of California Press: 1982; p202.
2. *J. Chem. Ed.* **1954**, 32, 534-541.
3. *Chem. Ber.* **1939**, 72, 5A-33A.
4. *Biographisches Lexikon der hervorragenden Ärzte*; Urban & Schwarzenberg: 1962; vol. 2, p776-777.
5. *Michaud Biographie Universelle (2nd Ed.)*; Delagrave: 1843-1865; vol. 16, p648-649.
6. *Biographie Medicale*; Bayle, G.-L.; Thillaye, J. B.-J., Eds.; B. M. Israel: 1967 Reprint; vol. 2, p729-730.
7. *Dictionnaire des Sciences Medicales Biographie Medicale*; C. L. F. Panoucke: 1820-1822; vol. 4, p454-456.
8. *Dictionnaire Historique de la Médecine*; Bechet Jeune: 1828-1839; vol. 2, p567-569.

Gmelin, Leopold

1788 - 1853

DEGREE: PhD

DATE: 1812

PLACE: Göttingen

TEACHER/RESEARCH ADVISOR: Stromeyer/Jacquin, J. F.

first to recognize the importance of carbon in organic compounds; coined the words ester and ketone; discovered $K_4Fe(CN)_6$ and hexahydroxybenzene; studied chemistry of digestion; discovered taurine; advocated H=1 standard for atomic weights; established series of reviews of inorganic chemistry still published today.

1. *A Biographical Dictionary of Scientists*; Williams, T. I., Ed.; Wiley: 1969; p217.
2. *Dictionary of Scientific Biography*; Charles Scribner's Sons: 1970-1990; vol. 5, p429-432.
3. Asimov, I. *Asimov's Biographical Encyclopedia of Science and Technology (2nd Ed.)*; Doubleday: 1982; p307-308.
4. Partington, J. R. *A History of Chemistry*; Macmillan: 1964; vol. 4, p180-182.
5. *Great Chemists*; Farber, E., Ed.; Interscience: 1961; p453-463.
6. *Quart. J. Chem. Soc.* **1855**, 7, 144-149.
7. *J. Chem. Ed.* **1954**, 32, 534-541.
8. *Chem. Ber.* **1939**, 72, 5A-33A.
9. *Neue Deutsche Biographie*; Duncker & Humblot: 1953-1990; vol. 6, p476-481.
10. *Biographisches Lexikon der hervorragenden Ärzte*; Urban & Schwarzenberg: 1962; vol. 2, p777-778.

Gmelin, Philipp Friedrich

1721 - 1768

DEGREE: MD

DATE: 1742

PLACE: Tübingen

TEACHER/RESEARCH ADVISOR: Mauchart

professor of botany and chemistry; studied chemistry of antimony; wrote texts on the pancreatic ducts, on mineral waters, and on botany.

1. *J. Chem. Ed.* **1954**, 32, 534-541.
2. *Chem. Ber.* **1939**, 72, 5A-33A.
3. *Biographisches Lexikon der hervorragenden Ärzte*; Urban & Schwarzenberg: 1962; vol. 2, p776.
4. *Michaud Biographie Universelle (2nd Ed.)*; Delagrabe: 1843-1865; vol. 16, p646.
5. *Dictionnaire des Sciences Medicales Biographie Medicale*; C. L. F. Panoucke: 1820-1822; vol. 4, p461-462.

Gronovius, Johannes Frederick II

1690 - 1760

DEGREE:

DATE: 1715

PLACE: Leiden

TEACHER/RESEARCH ADVISOR:

jurist and botanist; wrote texts on zoology and geology.

1. *Biographisch Woordenboek der Nederlanden*; J. J. van Brederode: 1852-1878; vol. 7, p445.
2. *Nouvelle Biographie Generale*; Firmin, Didot Freres: 1852-1866; vol. 22, col 158.
3. *Michaud Biographie Universelle (2nd Ed.)*; Delagrabe: 1843-1865; vol. 17, p590.

Gronovius, Laurent Theodor II

1730 - 1777

DEGREE: MD

DATE: 1750 ca.

PLACE: Leiden

TEACHER/RESEARCH ADVISOR: Gronovius, J. F.

botanist and zoologist; wrote a text on ichthyology and a zoological encyclopedia.

1. *Biographisch Woordenboek der Nederlanden*; J. J. van Brederode: 1852-1878; vol. 7, p446-447.
2. *Dictionnaire des Sciences Medicales Biographie Medicale*; C. L. F. Panoucke: 1820-1822; vol. 4, p526.

3. *Michaud Biographie Universelle (2nd Ed.)*; Delagrabe: 1843-1865; vol. 17, p590.
4. *Nouvelle Biographie Generale*; Firmin, Didot Freres: 1852-1866; vol. 22, col 158.
5. *Jöcher's Allgemeine Gelehrten Lexicon*; Johann Friedrich Gleditschen: 1750-1787; vol. 2(suppl.), col 1625.

Hoffvenius, Petrus 1630 - 1682

DEGREE: MD DATE: 1660 PLACE: Leiden
TEACHER/RESEARCH ADVISOR: Linden

professor of medicine; called the father of Swedish medicine; supporter of Descartes; studied the pineal gland and respiration.

1. *Svenskt Biografiskt Lexikon*; Albert Bonniers: 1918-1985; vol. 19, p186-189.
2. *Biographiskt Lexicon öfver Namnkunnige Svenska Män*; Leffler & Sebell: 1835-1857; vol. 5-6, p188-195.

Jacquin, Joseph Franz 1766 - 1839

DEGREE: MD DATE: 1788 PLACE: Vienna
TEACHER/RESEARCH ADVISOR: Jacquin, N. J.

professor of botany and chemistry; studied the metallization of alkalis; wrote books on artesian wells, ornithology, rare plants, grasses, the Ginko tree, microscopes, optics, and a textbook on general and medicinal chemistry; son of N. J. Jacquin.

1. *Neue Deutsche Biographie*; Duncker & Humblot: 1953-1990; vol. 10, p257.
2. *Allgemeine Deutsche Biographie*; Duncker & Humblot: 1967-1971 Reprint; vol. 13, p631.
3. *J. South African Bot.* **1942**, 8, 201-224.
4. *Nouvelle Biographie Generale*; Firmin, Didot Freres: 1852-1866; vol. 26, col 275.
5. *Stud. Gesch. Univ. Wien* **1965**, 3, 126-202.
6. *J. Bot.* **1923**, 61, 287-290.
7. *Zur Gesch. Pharm. (Geschichtsbeilage Deut. Apoth. Ztg.)* **1962**, 14, 17-24.
8. *Wiener Ztg.* **23Jan1840**, p143-144.

Jacquin, Nicolas Joseph 1727 - 1817

DEGREE: none DATE: 1752 ca. PLACE: Leiden
TEACHER/RESEARCH ADVISOR: Gronovius, L. T.

professor of chemistry and botany; "the Linnaeus of Austria"; studied chemical relationship between limestone, lime, and quicklime; important early supporter of Black's ideas on the burning of lime and the nature of combustion; studied the decarboxylation of aliphatic carboxylic acids; spent five years studying and collecting the flora of the Carribean islands.

1. *Dictionary of Scientific Biography*; Charles Scribner's Sons: 1970-1990; vol. 7, p57-59.
2. Partington, J. R. *A History of Chemistry*; Macmillan: 1962; vol. 3, p146-147.

- Hufbauer, K. *The Formation of the German Chemical Community (1720-1795)*; University of California Press: 1982; p188-189.
- J. South African Bot.* **1942**, 8, 201-224.
- Neue Deutsche Biographie*; Duncker & Humblot: 1953-1990; vol. 10, p257-259.
- Allg. Nord. Ann. Chem.* **1820**, 5, 230-235.
- Nouvelle Biographie Generale*; Firmin, Didot Freres: 1852-1866; vol. 26, col 273-276.
- Michaud Biographie Universelle (2nd Ed.)*; Delagrabe: 1843-1865; vol. 20, p515-516.
- Österreich. Rundschau* **1905**, 3, 237-251.
- Dictionnaire des Sciences Medicales Biographie Medicale*; C. L. F. Panoucke: 1820-1822; vol. 5, p337-339.
- Stud. Gesch. Univ. Wien* **1965**, 3, 126-202.
- Zur Gesch. Pharm. (Geschichtsbeilage Deut. Apoth. Ztg.)* **1962**, 14, 17-24.

Klingenshierna, Samuel

1698 - 1765

DEGREE: LLB

DATE: 1717

PLACE: Uppsala

TEACHER/RESEARCH ADVISOR: Duhre

professor of mathematics and physics; studied the geometry of optics and was the first to give a comprehensive theory for the design of lenses that are achromatic and lack spherical aberration.

- Dictionary of Scientific Biography*; Charles Scribner's Sons: 1970-1990; vol. 7, p403-404.
- Swedish Men of Science 1650-1950*; Lindroth, D., Ed.; Almqvist & Wiksell: 1952; p59-65.
- Biographiskt Lexicon öfver Namnkunnige Svenska Män*; Leffler & Sebell: 1835-1857; vol. 7-8, p77-84.

Lavoisier, Antoine Laurent

1743 - 1794

DEGREE: LLB

DATE: 1764

PLACE: Paris

TEACHER/RESEARCH ADVISOR: Rouelle

Founder of Modern Chemistry. overturned phlogiston theory and proposed modern view of combustion; established chemical components of water; co-founded modern chemical nomenclature; founded science of calorimetry; discovered law of conservation of matter; established chemical identity of metal oxides; wrote first modern chemistry textbook "Traite Elementaire de Chimie" in 1789; guillotined after French Revolution.

- Asimov, I. *Asimov's Biographical Encyclopedia of Science and Technology (2nd Ed.)*; Doubleday: 1982; p222-226.
- Dictionary of Scientific Biography*; Charles Scribner's Sons: 1970-1990; vol. 8, p66-91.
- Great Chemists*; Farber, E., Ed.; Interscience: 1961; p263-281.
- Partington, J. R. *A History of Chemistry*; Macmillan: 1962; vol. 3, p363-495.
- Jaffe, B. *Crucibles*; Tudor Publ. Co.: 1930; p93-113.
- A Biographical Dictionary of Scientists*; Williams, T. I., Ed.; Wiley: 1969; p313-315.
- Proc. Roy. Soc. A* **1947**, 189, 427-456.
- Tilden, W. A. *Famous Chemists*; Routledge & Sons: 1921; p63-77.
- Thorpe, E. *Essays in Historical Chemistry*; Macmillan: 1923; p123-148.
- Isis* **1954**, 45, 51-62.
- Isis* **1956**, 47, 211-216.
- McKie, D. *Antoine Lavoisier*; V. Gollancz: 1952.

13. *Das Buch der Grossen Chemiker*; Bugge, G., Ed.; Verlag Chemie: 1929; vol. 1, p304-333.

Lémery, Nicolas

1645 - 1715

DEGREE: Apothecary

DATE: 1667 ca.

PLACE: Paris

TEACHER/RESEARCH ADVISOR: Glaser

first to distinguish between vegetable (organic) and mineral (inorganic) chemistry; published influential textbook on chemistry; adopted an atomic theory assuming that fundamental particles have characteristic shapes; discovered a commercial process for the production of sulfuric acid; obtained boric acid from borax; investigated chemistry of antimony sulfide; analyzed camphor and honey.

1. *Dictionary of Scientific Biography*; Charles Scribner's Sons: 1970-1990; vol. 8, p172-175.
2. Partington, J. R. *A History of Chemistry*; Macmillan: 1962; vol. 3, p28-41.
3. *Great Chemists*; Farber, E., Ed.; Interscience: 1961; p149-161.
4. *A Biographical Dictionary of Scientists*; Williams, T. I., Ed.; Wiley: 1969; p321.
5. *J. Soc. Chem. Ind. (London)* **1935**, 54, 347-348.
6. *Isis* **1925**, 7, 430-432.
7. *Nouvelle Biographie Generale*; Firmin, Didot Freres: 1852-1866; vol. 30, col 598-603.
8. *Revue d'Histoire Pharm.* **1931**, 19, 208-219.
9. *Chimie Analytique* **1946**, 28, 17-18.
10. *Biographie Medicale*; Bayle, G.-L.; Thillaye, J. B.-J., Eds.; B. M. Israel: 1967 Reprint; vol. 2, p8-10.
11. Figuiet, L. *Vies des Savants Illustres*; Hachette & Co.: 1879; vol. 4, p435-443.
12. Cap, P. A. *Etudes Biographiques pour servir a l'Histoire des Sciences*; Masson et Fils: 1857; vol. 1, p180-226.
13. Fontenelle, B. *Eloges des Academiciens avec l'histoire de l'Academie Royale des Sciences en 1699*; I. van der Kloot: 1740; vol. 1, p334-350.
14. *Dictionnaire des Sciences Medicales Biographie Medicale*; C. L. F. Panoucke: 1820-1822; vol. 5, p572-574.

Limpricht, Heinrich Franz Peter

1827 - 1909

DEGREE: PhD

DATE: 1850

PLACE: Göttingen

TEACHER/RESEARCH ADVISOR: Wöhler

discovered furan and sulfo acids; studied chemistry of pyrrole, furan, thiophene, nitriles, uric acid, and cyanuric acid; investigated chemistry of chloro derivatives of aromatic compounds; developed new syntheses of aliphatic acids, alcohols, and aldehydes; studied chemistry of alanine, isoleucine, and other amino acids; discovered syntheses of anthracene and diphenylacetylene.

1. *Chem. Zeitung* **1909**, 33, 545.
2. Partington, J. R. *A History of Chemistry*; Macmillan: 1964; vol. 4, p766-767.
3. *Chem. Ber.* **1909**, 42, 1859-1860.
4. *Chem. Ber.* **1909**, 42, 5001-5036.

Linden, Johannes Antonides van der 1609 - 1664

DEGREE: MD DATE: 1630 PLACE: Franeker
TEACHER/RESEARCH ADVISOR: Winsemius

professor of medicine, anatomy, and botany; philologist and philosopher; published books on medical bibliography, physiology, milk, and venereal diseases; published an edition of Hippocrates' *Opera Omnia* and an edition of Celsius' *De Medicina*.

1. *Science, Medicine and History*; Underwood, E. A., Ed.; Oxford University Press: 1953; vol. 2, p3-20.
2. *Biographisches Lexikon der hervorragenden Ärzte*; Urban & Schwarzenberg: 1962; vol. 3, p790-791.
3. *Nieuw Nederlandsch Biografisch Woordenboek*; A. W. Sijthoff's Uitgevers-Maatschappij: 1911-1937; vol. 7, p770-771.
4. *Biographisch Woordenboek der Nederlanden*; J. J. van Brederode: 1852-1878; vol. 11, p471-474.
5. *Biographie Medicale*; Bayle, G.-L.; Thillaye, J. B.-J., Eds.; B. M. Israel: 1967 Reprint; vol. 1, p415-417.
6. *Nouvelle Biographie Generale*; Firmin, Didot Freres: 1852-1866; vol. 31, col 255-257.
7. *Nederl. Tijdschr. v. Geneeskunde* **1863**, 7, 193-206.
8. *Dictionnaire Historique de la Médecine*; Bechet Jeune: 1828-1839; vol. 3, p458-460.

Mauchart, Burchard David 1696 - 1751

DEGREE: Lic. Med. DATE: 1722 PLACE: Tübingen
TEACHER/RESEARCH ADVISOR: Camerarius, E., Jr.

professor of anatomy and surgery; specialist in ophthalmology.

FOOTNOTE: Mauchart studied for two years in Paris from 1718-1720 under the ophthalmologist (more properly, oculist) Woolhouse.

1. *Biographisches Lexikon der hervorragenden Ärzte*; Urban & Schwarzenberg: 1962; vol. 4, p121-122.
2. *Jöcher's Allgemeine Gelehrten Lexicon*; Georg Jöntzen: 1810-1813; vol. 4(suppl.), col 1014.
3. *Nouvelle Biographie Generale*; Firmin, Didot Freres: 1852-1866; vol. 34, col 341-342.
4. *Allgemeine Deutsche Biographie*; Duncker & Humblot: 1967-1971 Reprint; vol. 20, p687.
5. *Michaud Biographie Universelle (2nd Ed.)*; Delagrave: 1843-1865; vol. 27, p301-302.
6. *Comment. Rebus Sci. Nat. Med.* **1752**, 1(part 3), 531-538.
7. Börner, F. *Nachrichten von dem Vornehmsten Lebensumständen und Schriften Jetzlebender Berühmter Aerzte und Naturforscher*; J. C. Meissner: 1749; vol. 1, p345-363.

Noyes, William Albert 1857 - 1941

DEGREE: PhD DATE: 1882 PLACE: Johns Hopkins
TEACHER/RESEARCH ADVISOR: Remsen

determined the atomic weight of chlorine; responsible for an exact determination of the hydrogen-oxygen atomic weight ratio, which still stands today as one of the most precise chemical determinations ever made; studied the oxidation of benzene derivatives with potassium ferricyanide;

developed methods for the determination of phosphorus, sulfur, and manganese in iron; made a complete study of camphor, and was the first to furnish definitive proof of its structure; studied the hydrolysis of maltose and dextrin; studied the preparation of optically active diazo compounds and amine oxides; active in the development of the theory of valence and reactions; founder of *Chemical Abstracts*, first editor of *Chemical Reviews*, and long-time editor of *J. Am. Chem. Soc.*.

1. *Science* **1941**, 94, 477-479.
2. *J. Am. Chem. Soc.* **1944**, 66, 1045-1056.
3. *Dictionary of Scientific Biography*; Charles Scribner's Sons: 1970-1990; vol. 10, p157-158.
4. *National Cyclopaedia of American Biography*; James T. White & Co.: 1921-1984; vol. 44, p258-259.
5. *National Cyclopaedia of American Biography*; James T. White & Co.: 1921-1984; vol. B, p314.
6. *Dictionary of American Biography*; Malone, D., Ed.; Charles Scribner's Sons: 1936; vol. 3 (suppl), p565-566.
7. *Biog. Mem. Nat. Acad. Sci.* **1952**, 27, 179-208.

Pauw, Petrus

1564 - 1617

DEGREE: MD

DATE: 1587

PLACE: Rostock

TEACHER/RESEARCH ADVISOR: Brucaeus

professor of medicine, anatomy, and botany; wrote a text on skeletal anatomy and gave excellent descriptions of the frontal and maxillary sinuses; wrote with Fabricius a description of the intestinal valves.

1. *Nieuw Nederlandsch Biografisch Woordenboek*; A. W. Sijthoff's Uitgevers-Maatschappij: 1911-1937; vol. 4, col 1051-1053.
2. *Biographie Medicale*; Bayle, G.-L.; Thillaye, J. B.-J., Eds.; B. M. Israel: 1967 Reprint; vol.1, p341.

Ramus, Petrus

1515 - 1572

DEGREE: MA (philosophy)

DATE: 1536

PLACE: Paris

TEACHER/RESEARCH ADVISOR:

professor of philosophy and mathematics; champion of revival of arithmetic, geometry, astronomy, and physics in the educational curriculum (which had fallen into neglect) by emphasizing the practical origins and applications of these subjects.

FOOTNOTE: Ramus studied under Jean Le Hennuyer, a Dominican theologian.

1. *Dictionary of Scientific Biography*; Charles Scribner's Sons: 1970-1990; vol. 11, p286-290.
2. *Nouvelle Biographie Generale*; Firmin, Didot Freres: 1852-1866; vol. 41, col 570-576.
3. Ong, W. J. *Ramus, Method, and the Decay of Dialogue*; Harvard University Press: 1958.

Remsen, Ira

1846 - 1927

DEGREE: PhD

DATE: 1870

PLACE: Göttingen

TEACHER/RESEARCH ADVISOR: Fittig

discovered rules governing oxidation of aromatic sidechains and protective effect of ortho-substituents; synthesized saccharin; first attempt (in the reaction of CO with O₃) to prove the existence of a reactive intermediate by a trapping experiment; champion of idea that many elements have multiple valencies; founder of first journal of chemistry in the US (*Am. Chem. J.*); investigated structure of POCl₃ and stoichiometry of metal double salts; wrote several influential organic chemistry textbooks.

1. *Biog. Mem. Nat. Acad. Sci.* **1931**, *14*, 204-257.
2. *Dictionary of Scientific Biography*; Charles Scribner's Sons: 1970-1990; vol. 11, p370-371.
3. *J. Am. Chem. Soc. Proc.* **1928**, *50*, 67-79.
4. *American Chemists and Chemical Engineers*; Miles, W. D., Ed.; American Chemical Society: 1976; p402-403.
5. Partington, J. R. *A History of Chemistry*; Macmillan: 1964; vol. 4, p796-797.
6. *A Biographical Dictionary of Scientists*; Williams, T. I., Ed.; Wiley: 1969; p439.
7. *J. Chem. Soc.* **1927**, 3182-3189.
8. *J. Chem. Ed.* **1939**, *16*, 353-360.
9. *Science* **1927**, *66*, 243-246.
10. *Great Chemists*; Farber, E., Ed.; Interscience: 1961; p819-822.
11. Asimov, I. *Asimov's Biographical Encyclopedia of Science and Technology (2nd Ed.)*; Doubleday: 1982; p507.
12. *Proc. Welch Fdn. Conf.* **1977**, *20*, 46-71.
13. Getman, F. H. *The Life of Ira Remsen*; J. Chem. Ed.: 1940.

Rouelle, Guillaume François

1703 - 1770

DEGREE: Apothecary

DATE: 1725

PLACE: Paris

TEACHER/RESEARCH ADVISOR: Spitzley

founder of French school of chemistry; geologist; phlogistonist; proposed first modern definition of salts and first to distinguish neutral, acid, and basic salts; explained dehydrating action of sulfuric acid; proposed a theory of distillation; studied the reaction of essential oils with nitric acid; studied the chemical components of plants; analyzed mineral waters; established that the Egyptians used Na₂CO₃, succinic acid, and coal to effect mummification.

1. Partington, J. R. *A History of Chemistry*; Macmillan: 1962; vol. 3, p73-76.
2. *Dictionary of Scientific Biography*; Charles Scribner's Sons: 1970-1990; vol. 11, p562-564.
3. *Chymia* **1960**, *6*, 68-101.
4. *Chymia* **1961**, *7*, 73-102.
5. *Endeavour* **1953**, 130-133.
6. *Great Chemists*; Farber, E., Ed.; Interscience: 1961; p.185-192.
7. *A Biographical Dictionary of Scientists*; Williams, T. I., Ed.; Wiley: 1969; p450.
8. *Michaud Biographie Universelle (2nd Ed.)*; Delagrabe: 1843-1865; vol. 36, p585-588.
9. *Revue d'Histoire des Sciences* **1970**, *23*, 305-332.
10. *Mem. Soc. Vaudoise Sci. Nat.* **1943**, *7*, 219-444.
11. *J. de Pharm. et de Chemie* **1842**, *2*, 218-241.

12. *Revue d'Hist. de la Pharm.* **1933**, 21, 169-186.
13. *Revue d'Hist. de la Pharm.* **1949**, 434-442.
14. *Nouvelle Biographie Generale*; Firmin, Didot Freres: 1852-1866; vol. 42, col 710-711.
15. *Correspondence Litteraire, Philosophique, et Critique par Grimm, Diderot, etc.*; Tourneaux, M., Ed.; Garnier Freres: 1877-1882; vol. 6, p106-109.
16. Figuiet, L. *Vies des Savants Illustres*; Hachette & Co.: 1879; vol. 3, p433-443.
17. Cap, P. A. *Etudes Biographiques pour servir a l'Histoire des Sciences*; Masson et Fils: 1857; vol. 1, p231-263.
18. *Oeuvres Completes de Diderot*; Garnier Freres, Libraires-Editeurs: 1875-1877; vol. 6, p405-410.

Spitzley, J. G. 1690 - 1750

DEGREE: Apothecary DATE: PLACE: Paris
 TEACHER/RESEARCH ADVISOR: L  mery

NOTE: birth and death dates are guesses.

1. See Figuiet, L. *Vies des Savants Illustres*; Hachette & Co.: 1879; vol. 3, p438 and *J. de Pharm. et de Chemie* **1842**, 2, 218 for confirmation of connection to L  mery.

Str  mer, M  rten 1707 - 1770

DEGREE: none DATE: 1730 ca. PLACE: Uppsala
 TEACHER/RESEARCH ADVISOR:

mathematician and astronomer; studied the motion of bodies; translated Euclid's *Elements* into Swedish; wrote texts on geometry, trigonometry, magnetic declination, barometric pressure, meteorology, electricity, and astronomy; improved Celsius' thermometer by reversing the scale to make 0 degrees the freezing point and 100 degrees the boiling point of water rather than vice-versa; was among the first in Europe to apply electricity as an aid in healing.

1. *Biographiskt Lexicon   fver Namnkunnige Svenska M  n*; Leffler & Sebell: 1835-1857; vol. 15-16, p113-114.

Stromeyer, Friedrich 1776 - 1835

DEGREE: MD DATE: 1800 PLACE: G  ttingen
 TEACHER/RESEARCH ADVISOR: Vauquelin/Gmelin, J. F.

discovered cadmium; started first German university chemistry teaching laboratory; first to recommend starch as a reagent for free iodine; studied chemistry of arsine and bismuthate salts.

1. *J. Chem. Ed.* **1953**, 30, 202-204.
2. Asimov, I. *Asimov's Biographical Encyclopedia of Science and Technology (2nd Ed.)*; Doubleday: 1982; p276-277.
3. Weeks, M. E. *Discovery of the Elements (7th Ed.)*; Leicester, H. M., Ed.; J. Chem. Ed.: 1968; p502-508.
4. Partington, J. R. *A History of Chemistry*; Macmillan: 1962; vol. 3, p659-660.

5. *Biographisches Lexikon der hervorragenden Ärzte*; Urban & Schwarzenberg: 1962; vol. 5, p566.

Vauquelin, Louis Nicolas

1763 - 1829

DEGREE: MA

DATE: 1790

PLACE: Paris

TEACHER/RESEARCH ADVISOR: Fourcroy

discovered chromium, recognized existence of beryllium, and discovered BeO; discovered first amino acid - asparagine (isolated from asparagus!); isolated camphoric acid, quinic acid, and cyanic acid from natural products; developed methods for the separation of platinum metals; studied action of wine, vinegar, and oils on vessels made of tin and lead; investigated the respiration of insects.

1. Partington, J. R. *A History of Chemistry*; Macmillan: 1962; vol. 3, p551-557.
2. Asimov, I. *Asimov's Biographical Encyclopedia of Science and Technology (2nd Ed.)*; Doubleday: 1982; p252-253.
3. *Dictionary of Scientific Biography*; Charles Scribner's Sons: 1970-1990; vol. 13, p596-598.
4. *J. Chem. Ed.* **1941**, 18, 3-7.
5. *A Biographical Dictionary of Scientists*; Williams, T. I., Ed.; Wiley: 1969; p528.
6. Weeks, M. E. *Discovery of the Elements (7th Ed.)*; Leicester, H. M., Ed.; *J. Chem. Ed.*: 1968; p271-278.
7. *Mem. l'Acad. Sci. l'Inst. Fr.* **1833**, 12, xli-lvi.
8. *J. Chim. Medicale* **1850**, 6, 540-559.
9. *Nouvelle Biographie Generale*; Firmin, Didot Freres: 1852-1866; vol. 45, col 1033-1036.
10. *Hist. Memb. l'Acad. Roy. Med.* **1845**, 1, 316-350.
11. *Das Buch der Grossen Chemiker*; Bugge, G., Ed.; Verlag Chemie: 1929; vol. 1, p356-368.

Winsemius, Menelaus

1591 - 1637

DEGREE: MD

DATE: 1613

PLACE: Leiden

TEACHER/RESEARCH ADVISOR: Pauw

professor of medicine, anatomy, and botany; improved the botanical gardens at the University of Franeker; published, with his students, an anatomical compendium.

1. *Nieuw Nederlandsch Biografisch Woordenboek*; A. W. Sijthoff's Uitgevers-Maatschappij: 1911-1937; vol. 10, col 1223.
2. *Biographisches Lexikon der hervorragenden Ärzte*; Urban & Schwarzenberg: 1962; vol. 5, p961.
3. *Biografisch Woordenboek der Nederlanden*; J. J. van Brederode: 1852-1878; vol. 20, p308.

Wöhler, Friedrich

1800 - 1882

DEGREE: MD

DATE: 1823

PLACE: Heidelberg

TEACHER/RESEARCH ADVISOR: Gmelin, L.

discovered aluminum, beryllium, and yttrium; synthesized urea from ammonium cyanate and

thereby showed that organic and inorganic chemistry were related -- this discovery also introduced the concept of intramolecular rearrangement of atoms; with Liebig, formulated compound-radical theory; discovered hydroquinones, calcium carbide, and the chemical relationship between C and Si; invented industrial method for obtaining nickel and cobalt from their ores.

FOOTNOTE: Wöhler was a medical student at Heidelberg where Gmelin was the Professor of Chemistry. Gmelin persuaded Wöhler to study chemistry and sent him to Berzelius' laboratories to learn the subject in depth.

1. Asimov, I. *Asimov's Biographical Encyclopedia of Science and Technology (2nd Ed.)*; Doubleday: 1982; p342-343.
2. Weeks, M. E. *Discovery of the Elements (7th Ed.)*; Leicester, H. M., Ed.; J. Chem. Ed.: 1968; p565-571.
3. Jaffe, B. *Crucibles*; Tudor Publ. Co.: 1930; p175-198.
4. *Dictionary of Scientific Biography*; Charles Scribner's Sons: 1970-1990; vol. 14, p474-479.
5. Partington, J. R. *A History of Chemistry*; Macmillan: 1964; vol. 4, p320-334.
6. *Great Chemists*; Farber, E., Ed.; Interscience: 1961; p505-520.
7. *Chem. Ber.* **1882**, 15, 3127-3290.
8. *Am. Chemist* **1875**, 6, 131-136.
9. *Pop. Sci. Monthly* **1880**, 17, 539-551.
10. *Chem. News* **1884**, 49, 91-93.
11. *J. Chem. Ed.* **1928**, 5, 1536-1557.
12. *Proc. Roy. Soc.* **1883**, 35, xii-xx.
13. *Proc. Roy. Inst. Gr. Brit.* **1882-4**, 10, 477-482.
14. *J. Chem. Soc. Trans.* **1883**, 43, 258-263.
15. *Proc. Am. Acad. Arts Sci.* **1950**, 78, 25-26.
16. Thorpe, E. *Essays in Historical Chemistry*; Macmillan: 1923; p294-317.
17. *A Biographical Dictionary of Scientists*; Williams, T. I., Ed.; Wiley: 1969; p566-567.
18. *Am. Chem. J.* **1882-3**, 4, 289-292.
19. Prandtl, W. *Deutsche Chemiker in der Ersten Hälfte des Neunzehnten Jahrhunderts*; Verlag Chemie: 1956; p155-192.
20. *Das Buch der Grossen Chemiker*; Bugge, G., Ed.; Verlag Chemie: 1930; vol. 2, p31-52.

Woolhouse, John Thomas

1650 - 1734

DEGREE:

DATE:

PLACE:

TEACHER/RESEARCH ADVISOR:

ophthalmologist; wrote texts on cataracts and glaucoma; developed a surgical procedure for the restoration of sight in cases of occluded pupils; oculist to James II of England.

1. *Biographie Medicale*; Bayle, G.-L.; Thillaye, J. B.-J., Eds.; B. M. Israel: 1967 Reprint; vol. 2, p197.
2. *Dictionary of National Biography*; Smith, Elder & Co.: 1908-1986; vol. 21, p900-901.
3. *Biographisches Lexikon der hervorragenden Ärzte*; Urban & Schwarzenberg: 1962; vol. 5, p994.
4. *Michaud Biographie Universelle (2nd Ed.)*; Delagrave: 1843-1865; vol. 45, p63.
5. Hirschberg, J. *Geschichte der Augenheilkunde*; Engelmann: 1899-1918; vol. 3(part 2), p385-396.