

GEORGE ENGELMANN BIOGRAPHY

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Engelmann, George [Georg] Theodor (1809-1884)—physician, botanist and taxonomist, specializing on cacti in the western states of USA, became the leading cactologist of his time.



Born in Frankfort, Germany, on 2 February 1809, George Engelmann first became a physician with a MD (Dr med) from the University of Wurzburg, Germany in 1831 with a thesis *De Antholysi Prodrumus* (= Morphology of Plants and Flowers). In the early 19th Century medicine was still botanically oriented where all students studied medical plants as a major part of the curriculum. Engelmann was very fond of his university classes in botany. The study of medical plant anatomy gave him an advantage over many other American botanists after he immigrated to the USA.

Immigrating to the United States of America (USA) in 1832, Engelmann became an American cactologist (taxonomist) and a first rate botanist as well as a physician for the rest of his life. He was the eldest of 13 children and had a relative already settled in Illinois near St. Louis by the 1830s. Some of Engelmann's uncles in Germany decided to invest in real estate along the Mississippi River. He volunteered and was accepted to be their American agent. Riding alone in 1833 and 1834 on horseback in southern Illinois, Missouri and Arkansas until his money was exhausted. He established a medical practice in St. Louis, Missouri by 1835 where he lived for the rest of his life..

After four years as a successful physician Engelmann returned to Germany to marry his distant cousin, Dorothea [Dora] Horstmann (1804–1879). On the way back to St. Louis he met botanist (Dr med) Asa Gray (1810–1888) at Harvard University, Cambridge, Massachusetts, that formed a friendship that lasted the rest of their lives.

Engelmann became a leading physician in St. Louis. It was during this time that the botanist in him allowed him to explore in a number of states, studying cacti and other plants in their native habitat—with (Dr med) John Torrey (1796–1873) in Colorado and (Dr med) Asa Gray in Virginia. He started receiving so many plants to identify from his colleagues and friends that this along with his medical practice kept him a very busy man in St. Louis. (Dr med) Friedrich Adolph Wislizenus (1810–1889) was a colleague of Engelmann who discovered a number of cactus plants out west which was described by Engelmann, including *Echinocactus (Ferocactus) wislizeni*.

Engelmann was one of the first in the USA to research and describe a majority of cacti, agaves and yuccas in Texas and southwestern parts of the United States of America along with some in the northern portion of Mexico. He was in touch with leading botanists of his time. He made a careful study of cacti, agaves, yuccas, and published numerous papers on the subjects. He even wrote a two-page article in volume 8 in the *Botanical Gazette* on 'Morphology of Spines', including observations on the spines of *Fourquiera splendens* in 1883 — and another two-page article in volume 11 of the *Gazette* on 'Directions for Collecting Cacti' in 1886 from posthumous notes based on a manuscript by Dr. Engelmann.

Engelmann's best known work is his 1859 'Cactaceae of the Boundary' with 76 steel engravings illustrated in the famous report of the survey. This was a report of the 1848–53 USA and Mexican Boundary Survey, under the direction of Lt.-Col. William Hemsley Emory (1811–1887). Included on this survey was physician and botanist (Dr med) John Milton Bigelow (1804–1878) along with botanists (and surgeon) (Dr med) Charles Christopher Parry (1823–1890), (Dr med) George Thurber (1821–1890) and Charles Wright (1811–1885). A talented German artist, Paulus Roetter (1806–1974), illustrated 61 pencil sketches showing botanical details for Engelmann's book. In recognition of these artistic skills, Engelmann named a natural hybrid cactus *Cereus (Echinocereus) x roetteri* in his honor. From Roetter's illustrations, the Survey's exquisite steel engravings were made by WH Dougal (c1808-?) and various other engravers in the USA, Germany and France. Engelmann described 146 species and 186 varieties of cactus plants in this book.

Other books by Engelmann includes: (1) Sketch of the botany of Wislizenus' expedition (1848 Memoir of a Tour to Northern Mexico in 1846-47); (2) 1852 Notes on the *Cereus giganteus* of Southeastern California and Other California Cactaceae; (3) 1853-54 Description of the Cactaceae Collected on Route near the Thirty-fifth Parallel, led by Lt. Amiel Weeks Whipple (1816-1863) and with

Bigelow as physician and botanist; and (4) other books, booklets or papers of expeditions across the western United States. A good many of the cactus plants discovered on these expeditions were reviewed and described by Engelmann.

Engelmann described the popular genus *Echinocereus* in 1848. He was also the first to use the name *Coryphantha* as a subgenus of *Mammillaria* in 1856, increased to generic status by Charles Antoine Lemaire (1800–1971) in 1868.

Three species were named in Engelmann's honor: (1) *Agave engelmanni* by (Dr) William Trelease (1857–1945) in 1891, (2) *Cereus engelmannii* by his brother Henry Engelmann (1831–1899) in 1852 and transferred to *Echinocereus engelmannii* by Charles Antoine Lemaire (1800–1871) in 1868 and (3) *Opuntia engelmannii* by Joseph Franz Maria Salm-Dyck (1773–1861) in 1850.

Engelmann described many succulent plant species: *Agave*, *Cereus* (all transferred to other genera later), *Echinocactus* (many transferred to other genera later), *Echinocereus*, *Fouquieria splendens*, *Mammillaria*, *Opuntia*, *Portulaca*, *Talinum calycinum*, and *Yucca*.

(Dr med) George Theodor Engelmann died on 4 February 1884, just two days after his 75th birthday. Since his many publications were so widely scattered after his death, his publications were not easily available to those who needed them. Therefore, his good friend, Henry Shaw (1800–1889), decided to find all of Engelmann's botanical works and combine them into one publication as a memorial to his old friend and associate. The 'Botanical Works of the Late George Engelmann, Collected for Henry Shaw, Esq.' was published in 1887. One of the bigger tasks was to recover the illustrations—the 76 steel plant quarto engravings used in 'Cactaceae of the Boundary' were found in the Smithsonian Institution, Washington, DC. However, the engravings were so badly rusted it became a large expense to repair them. The 24 plates used on the Cactaceae of Whipple's expedition and the 3 plates of Simpson's expedition that were engraved or drawn on stone had to be re-produced. It is now a rare book, but at the time the book was available to botanists world-wide for many years.

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