

John Casper Branner (1850–1922): Rock Star in Two Countries

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John Casper Branner in 1873 when he was at Cornell University (<https://exhibits.stanford.edu/su-photos/catalog/xr781dp2555>).

Upon Dr. Branner's arrival, I came under the spell of a great scientist and a great teacher, whose friendship lasted over his lifetime.

—Herbert Hoover

EARLY YEARS

John Casper Branner was born in New Market, Tennessee, USA, on 4 July 1850, the second of nine children. At age two, his family moved to a farm on the French Broad River, near Dandridge, Tennessee. That allowed him to have close contact with the natural world, probably influencing his decision to become a geologist. At six, he and his sister, age 10, attended a female academy, but he went to the boy's academy the following year. During the Civil War, the family home became a field hospital, and the family lost everything. Twice Branner left school to enlist, unsuccessfully, in the Confederate Army; he was only 12 the first time and 13 the second.

Branner studied a year at Horton Academy in New Market in 1865, and in 1867 attended Maryville College (Tennessee). While there he became interested in the new university in Ithaca, New York, founded by Ezra Cornell. In 1869, planning to do a divinity course, he traveled to Ithaca where he studied at Ithaca Academy before entering Cornell in 1870. He covered expenses by teaching Latin, washing dishes, and other odd jobs, but often went hungry due to the lack of funds. He began the “classical course” (Branner 1913, p. 371), but took mostly science classes, including geology, which brought him in contact with Charles Hartt, who created the geology department in 1868; thus, changing Branner's life and beginning his involvement with Brazil.

BRAZIL

Even without having a degree, Hartt chose Branner to accompany him to Brazil in 1874. Hartt's goal was to create a geological survey, and the “Geological Commission of Brazil” was founded

in 1875 but was discontinued in early 1878. Hartt died of yellow fever in March of 1878. Branner moved to the State of Minas Gerais to work in the gold mines, but the pay was poor and Branner returned to the U.S. in 1880.

However, Brazil beckoned and Branner went back, working for Thomas Edison, focusing on vegetable fibers for incandescent light bulbs. After traveling about 25,000 miles in his unsuccessful search, Branner returned home by the end of 1881, and received his B.S. from Cornell in 1882. The U.S. Department of Agriculture commissioned him to study the cotton-growing industry in Brazil, which lasted until the spring of 1883.



The “Geological Commission of Brazil” personnel (left to right) John C. Branner, Elias Fausto Pacheco Jordão, Charles F. Hartt, Herbert H. Smith, Orville A. Derby, Marc Ferrez, Unknown, Richard Rathbun.

STATE SURVEYS AND TEACHING

In 1883, Branner was appointed to the Second Geological Survey of Pennsylvania but didn't stay long. In the spring of 1885, with the assistance of his Cornell fraternity mate, David Starr Jordan, then President of Indiana University, Branner was elected a professor of geology, and the university granted him an honorary Ph.D. Branner and Jordan developed a center of educational excellence and cutting-edge geological research. However, Branner was soon on the move again. In the spring of 1887, he was appointed the first state geologist of Arkansas.

A state geological survey was needed because of possible gold and silver deposits in the Ouachita Mountains. Based on unverified beliefs, mining companies were formed to exploit the deposits. Branner's former Cornell classmate Theodore Comstock investigated these mining areas and found very little precious metal content. Considering about \$113 million¹ had been invested in the mining ventures, the news was not welcomed. Branner

¹ Approximately US\$3.3 billion in 2021 dollars (<https://futureboy.us/fsp/dollar.fsp> [accessed 23 July 2021]).

recognized this difficulty, but followed the science, stating that the "... investigations of the gold mines of the State must prove a disappointment to many, and that they will excite the animosity of others, are foregone conclusions. Public welfare and official integrity, however, alike demand that these results be made known" (Branner, 1888, p. XXXI). Animosity hardly describes the reaction, for Branner holds the distinction of being a state geologist who was hanged and burned in effigy. Fortunately, Governor Simon P. Hughes supported Branner.² However, not all the news was bad, for Branner and his team discovered exploitable deposits of bauxite and other materials.

In 1891, David Starr Jordan, founding president of Leland Stanford Junior University, asked his friend to join him in California. In 1892, Branner resigned his other positions to become Stanford's first professor of geology. In 1894, a Miss Lou Henry attended one of Branner's public lectures, "The Bones of the Earth," and this turned her toward geology.³ With Branner's help and encouragement, she became the first female geology student at Stanford, and there she met, and later married, another young geology student, Herbert Hoover, who eventually became president of the United States. Branner's geological work included seismic studies after the 1906 California earthquake. The governor appointed him to the State Earthquake Investigation Commission, and he became a charter member of the Seismological Society of America. At Stanford, Branner served as vice president in 1899, and upon Jordan's retirement in 1913, was the second president of Stanford University. He retired in 1915 and immediately went to the Panama Canal Zone to investigate earthquakes and related landslides.

BRAZIL PUBLICATIONS

Branner maintained a lifelong interest in Brazil, traveling in 1899 to study the reefs along the coast of Pernambuco, a region he had worked with Hartt. In 1907, he investigated the diamond districts in the State of Bahia and the geology of Sergipe and Alagoas. Finally, in 1911, he examined the geology and biology of the coastal areas around the mouth of the Amazon River. On these trips, Branner often worked with his classmate, Orville

Derby, who restarted the Hartt survey in 1906, namely the *Serviço Geológico e Mineralógico do Brasil* [Geological and Mineralogical Survey of Brazil], which is still active today.

Noted also as a linguist, in 1906, Branner published an elementary Brazilian geology book in Portuguese. In 1909, he published a massive bibliography of Brazilian geological publications, and, in 1910, he brought out a Portuguese grammar book. All his geological work came together when he published a new geologic map of Brazil⁴ in 1919. In the accompanying notes, Branner expressed his feeling for Brazil and its people: "... it [the map] is meant especially to be of service to the Brazilian people, among whom I have spent many years, to whom I am strongly attached, and in whose welfare I am deeply interested" (Branner, 1919, p. 199).

Branner and Susan D. Kennedy, a Vassar graduate, married in 1883. They had a daughter and two sons, one of whom, George C. Branner, became the state geologist of Arkansas when the survey was reestablished in 1923.⁵ Branner, who died on 1 March 1922, impacted the understanding of the geology in two countries. For Branner, "... the greatest honor of all is that which comes to one having ... '...his students doing good and honest work in every quarter of the globe' " (quoted in Penrose 1924, p. 22).

FURTHER READING⁶

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- Branner, J.C., 1913, Casper Branner of Virginia and His Descendants: Stanford, California, Stanford University, privately printed, 469 p.
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- De Linde, H.S., and Howard, J.M., 1999, Arkansas State Geological Survey publications, a record of 140 years of public service, in Howard, J.M., ed., Contributions to the Geology of Arkansas, Volume IV: Little Rock, Arkansas, 116 p.
- Jackle, F.R., 1967, John Casper Branner and Brazil [Ph.D. dissertation]: Ph.D. Stanford, California, Stanford University, 310 p. (Dissertation Services #67-11,038).
- Penrose, A.F., 1924, Memorial to John Casper Branner: Bulletin of the Geological Society of America, v. 36, p. 15–44.

² For the next 30 years, the Arkansas legislature, however, refused to fund an independent state geological survey. But more than 100 years later, no geological evidence has been discovered to dispute the conclusions in that report (de Linde and Howard, 1999, p. 80).

³ See "Lou Henry Hoover (1874–1944): An Independent Woman of Action," by Joanne Bourgeois, Michele Aldrich, and Léo F. Laporte; Rock Stars, *GSA Today*, Oct. 2021, p. 48–50.

⁴ <https://library.stanford.edu/blogs/stanford-libraries-blog/2015/04/john-casper-branners-map-brazil-original-or-facsimile> (accessed 23 July 2021).

⁵ <https://www.geology.arkansas.gov/ags-history.html> (accessed 23 July 2021).

⁶ For additional references, please contact the senior author, wbrice@pitt.edu; for Branner's publications, see Penrose, 1924, p. 23–44, and Jackle, 1967, p. 273–297.