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BIOGRAPHICAL MEMOIR JOHN CASPER BRANNER
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BY

R. A. F. PENROSE, Jr.

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JOHN CASPER BRANNER

By R. A. F. Penrose, Jr.

John Casper Branner was born at the town of New Market, Jefferson County, Tenn., on July 4, 1850. He was the son of Michael T. Branner and Elsie Baker Branner. His family were among the early settlers of the Shenandoah Valley of Virginia in the colonial days. They probably came originally from southern Germany or eastern Switzerland before the middle of the eighteenth century, and first settled in Pennsylvania. Somewhat later Casper Branner moved to Virginia, where in 1760 he received a grant of land in the Shenandoah Valley from Lord Fairfax, who had been given large estates in Virginia by Charles II.

The family lived in this region until 1799, when Doctor Branner's great grandfather, Michael Branner, moved to Jefferson County, Tenn., and took up lands near the town of Dandridge on the French Broad River. He became the progenitor of the Tennessee branch of the family, while his brother, John Branner, who remained in the Shenandoah Valley, became the progenitor of the Virginia branch of the family. Both branches have multiplied and have spread widely through many parts of the United States. Strong, active, and earnest people have been characteristic of the family, and many of them have occupied high positions in the communities in which they lived.

In the early childhood of Doctor Branner his family moved from New Market, Tenn., to the farms near Dandridge, owned by his father, some miles distant. At that time the country was sparsely settled, and books and schools were not numerous. The early education of Doctor Branner therefore was confined largely to local schools and to the reading of such books as were available. He attended the Maury Academy, about a mile from Dandridge, and later studied at what was known as the North Schoolhouse, at a school at Graham's Chapel, and still later he attended school at New Market.

Doctor Branner was naturally of an inquiring disposition, and in the scarcity of books he early developed a deep interest in the natural features of the country surrounding him. He thus rapidly became familiar with the character of the rocks and of the animals and flowers that were found in the neighborhood. This early bringing up in close contact with nature, followed later by an education in institutions of high learning, doubtless served to develop that remarkable originality and initiative which distinguished him in later life and which produced a man who became eminent among the scientists of his generation. In his early days he was intended for the ministry and was examined as to his qualifications for it, but he apparently never went further in this calling, having decided to devote himself to science.

In 1866 Doctor Branner went to Maryville College, situated near Knoxville, Tenn., where he remained for about two years. At this period the demoralization in the South which followed the Civil War reached even to Maryville College; the students became discontented and many of them left. Doctor Branner was then 18 years of age, and the new institution known as Cornell University had lately been established at Ithaca, N. Y. He was attracted by the possibilities for study there, and in 1869 went to what was known as the Ithaca Academy to prepare for the university, which he entered the next year.

At Cornell, Doctor Branner took up mostly scientific courses, particularly in geology, botany, zoology, and other branches of natural science. Here also he had the good fortune to meet Prof. Louis Agassiz and Dr. Charles F. Hartt, the latter then professor of geology at...
Cornell. Doctor Hartt had made several trips to Brazil in previous years and had published a valuable account of its geology. He finally decided to make another trip into that country and invited Doctor Branner to accompany him. Doctor Branner had not yet completed his university course, but was much pleased at this opportunity to visit what was then a somewhat remote region, and he sailed with Doctor Hartt from New York for Rio de Janeiro in September, 1874. In later years, on his return to the United States, he received the degree of B. S. from Cornell University.

The expedition to Brazil was of much interest and importance as the beginning of the first serious attempt to start systematic geologic work in that country; and it was greatly to the gratification of the two explorers that in the following year the Brazilian Government, under the Emperor Dom Pedro II, established a department to continue this work under the name of Comissão Geológica do Império do Brasil. This was due largely to the efforts of Doctor Hartt and Doctor Branner, assisted by Brazilian scientists and others interested in this work. The new department was under the Ministry of Agriculture, and Doctor Hartt was appointed director, with Doctor Branner as assistant. Orville A. Derby, Richard Rathbun, and E. F. Pacheco Jordão were also on the same survey. Work was begun in the spring of 1875.

Doctor Branner’s first exploration in Brazil was largely in the coastal region of the State of Pernambuco and in the States of Sergipe and Alagoas, as well as on the island of Fernando de Noronha, off the coast of Brazil. Large collections of geologic materials were rapidly assembled at the headquarters of the Comissão Geológica do Império do Brasil in Rio de Janeiro, including many cretaceous fossils from Sergipe and Alagoas, and Doctor Branner did much work in systematizing and arranging them. Somewhat later Dr. Charles A. White also described some of the fossils.

In 1876 Doctor Branner returned to the United States, but went to Brazil again within a few months. The work of the Comissão Geológica was carried on until the next year, when it was discontinued by the Brazilian Government. Doctor Hartt died shortly afterwards. In later years other Government organizations were instituted for geologic research and Doctor Branner in some of his subsequent trips to Brazil worked in conjunction with them.

After the discontinuance of the first survey, however, Doctor Branner accepted a position as assistant to James E. Mills, a well-known American mining engineer engaged in operating gold mines in the State of Minas Geraes. In this work Doctor Branner rapidly became familiar with the older paleozoic rocks of the region and the occurrence of gold and other ores in them; but though the scientific results of the work were of much interest, the financial results were not equally satisfactory, and in 1880 he returned to New York.

A few months later, however, he again went to Brazil at the request of Thomas A. Edison, the inventor, to search for a vegetable fiber which would add strength to incandescent lights. Doctor Branner collected and tested many kinds of bamboo and other fibrous plants throughout Brazil and the neighboring countries of Argentina, Uruguay, and Paraguay, but only a few of them seemed to possess the necessary straight-grained length and hardness desired. Moreover, when occasionally he found a fiber which might partly answer the purpose it was either too difficult to obtain or too rare in its occurrence to use practically. Doctor Branner was a very persistent man and was not easily baffled; but though he traveled many thousands of miles in this search, he eventually concluded that the bamboos of Japan and China, already known to be suitable for the use in question, were usually cheaper and could be more readily obtained than those of South America. He returned to New York again in December, 1881.

In the following year he was commissioned by the United States Department of Agriculture to go to Brazil to study the culture of cotton there, and especially the nature of the insects injurious to the cotton plant, with a view to securing information which might be useful in combating the destructive insect common in the cotton regions of the United States. Though this investigation was the main feature of the trip, yet he also collected much data on insects injurious to sugar cane, oranges, and other fruits and plants.

This work covered a large area of the country, and Doctor Branner and his assistant, Albert Koeble, were given every assistance by the Brazilian officials to facilitate their research.
They found that the same insect which did the greatest damage to cotton in the United States existed to a greater or less extent in all cotton-growing regions of Brazil, but that it was particularly abundant in certain districts. They made large collections, and in the spring of 1883 Doctor Branner returned to Washington and presented his results to the Department of Agriculture.

After this trip Doctor Branner temporarily ceased his frequent visits to Brazil and accepted an appointment on the Geological Survey of Pennsylvania to do topographic mapping in the Lackawanna Valley and neighboring country, one of the great anthracite and industrial regions of the United States. Prof. J. P. Lesley was director of the survey at that time, and his natural genius in topography was an inspiration to Doctor Branner in accomplishing similar work not only in Pennsylvania but subsequently in other regions. Doctor Branner also made careful observations on the glacial geology of northeastern Pennsylvania, comprising the southerly extension of the great glacial region in those parts, a subject of especial scientific interest to glacial geologists.

In the spring of 1885 Doctor Branner was elected professor of geology at Indiana University, Bloomington, Ind., and in the same year received the degree of Ph. D. from that institution. The president at that time was Dr. David Starr Jordan, noted scientist and one of the foremost ichthyologists in the world. Through his efforts and those of Doctor Branner the university became a center for special instruction and research. Doctor Branner, with his wide professional experience and his knowledge of remote regions, gave great effect to this movement, particularly in his work and instruction in geology, botany, and entomology; and he created a group of enthusiastic young students who later followed him to Arkansas and California. During part of this period he was also connected with the United States Geological Survey.

In the spring of 1887, Doctor Branner was appointed State geologist of Arkansas by Governor Hughes, a position which he accepted with leave of absence from Indiana University. One of the main reasons for the creation of the geological survey of Arkansas was the great excitement over the supposed existence of gold and silver in that State, especially in the Ouachita Mountains, which run westward from Hot Springs to what was then the border of Indian Territory, but which is now the border of Oklahoma.

Many companies capitalized at millions of dollars had been formed to work the alleged mines. A thorough investigation was made by Doctor Branner and his assistants, and they were eventually forced to the conclusion that the mines then known were valueless and the few which contained a little gold and silver carried them in such small quantities as to be insignificant. This announcement of the first work of the geological survey caused great indignation among many of those financially interested in promoting the mines; the State geologist was burned in effigy, and the governor of the State was asked to remove him from office. Doctor Branner, however, stood firm, for he knew that he was correct in his conclusions, and he ignored the bitter efforts to destroy his professional reputation. Governor Hughes also supported him, and the State legislature later endorsed his work and even increased the appropriation for continuing the survey. As time went on and the views of Doctor Branner were verified, the old antagonism was changed to a feeling of remarkable confidence and respect.

Doctor Branner carried on his active survey in Arkansas for about five years, though he continued the work periodically for many years afterwards. It was doubtless the greatest accomplishment of his life; and though accompanied with innumerable difficulties and most arduous work, the result was well worth his splendid efforts. Fourteen volumes were published, and several were prepared but not published on account of lack of funds. They cover the paleontology, stratigraphy, petrology, economic geology, and other natural features of the State. The mineral resources were carefully investigated and discussed throughout the survey reports, but the purely theoretic geology was never forgotten as the economic possibilities were unfolded. The survey was thus of great importance from both purely scientific and economic standpoints, and when Doctor Branner finally left Arkansas to go to Stanford University his departure was regretted by the whole community.
In some of his later trips to Arkansas after the survey closed he carried on geologic investigations previously unfinished and produced valuable results, some of which were described in various scientific journals and in the publications of scientific societies.

Much of the geologic work on the survey was done by Doctor Branner personally, and much of it was done under his supervision by geologists whom he had gathered about him from different parts of the country and by students who had followed him from Indiana University. A remarkable spirit of enthusiasm pervaded them all, and nothing manifested their loyalty to their chief more strikingly than when in 1907, many years after the survey had closed, the surviving members who had assisted Doctor Branner presented to him a portrait of himself as "an expression of their high regard and of their appreciation of his example and inspiration as a geologist and as a man." In replying to this presentation Doctor Branner said: "To every member of that former organization I feel strongly attached. A more loyal and more faithful body of men can not be found anywhere. As long as the survey lasted everyone exerted himself to the utmost to do honest scientific work and faithfully to serve the legitimate interest of the people of the State; and it is a great pleasure to know that our work in Arkansas is more highly thought of by the people of that State as time passes."

Doctor Branner was offered the professorship of geology at Stanford University in 1891, and resigned as State geologist of Arkansas and as professor of geology at Indiana University to accept the appointment. The new institution had just been founded and endowed by Senator and Mrs. Leland Stanford in memory of their son and only child, Leland Stanford, Jr. The president of the university at that time was Dr. David Starr Jordan, with whom Doctor Branner had formerly been associated at Indiana University; and in California, just as in Indiana, these two men worked together and gathered about them a teaching staff of distinguished scholars from all parts of the United States. The result was that Stanford University rapidly became a recognized institution of advanced learning; in fact, it never went through the condition of slow development which has marked many educational institutions, but it jumped almost immediately to the first rank, and is to-day everywhere regarded with admiration and respect.

Doctor Branner entered upon his duties as professor at Stanford University in the winter of 1892, and for over a quarter of a century, both during his official connection with it and after his retirement, he was active in its development, displaying the same energy and force that he had shown in previous work in other fields. His influence with his students was of an intellectual character which was truly astonishing and which impressed all who came in contact with him. In 1899 Doctor Branner was made vice president, and in 1913 was made president, though he still retained his position as head of the department of geology. In December, 1915, he retired from the presidency, greatly to the regret of the trustees and faculties, and was made president emeritus of Stanford University. In spite of his retirement his interest in the welfare of the university was always manifest and always sought.

In addition to Doctor Branner's educational and administrative work at Stanford, he always maintained his active interest in Brazil, and in 1899 he made a trip to that country for the purpose of studying the immense ocean reefs lying off the coast of Pernambuco, and of distinguishing those composed of sandstone from those of coral origin, a work that had never been done before. Doctor Branner had been familiar with this region ever since his early days in Brazil with Doctor Hartt, but he had not had an opportunity to study it in detail until this trip. The research covered some 1,300 miles of coast line, and a large amount of new geologic information was secured.

Doctor Branner was so deeply interested in exploration in Brazil that every time he visited it he found new material or new districts which he desired to investigate on future trips. In 1907, therefore, he again returned to Brazil in order to study the geology of the black diamond districts of the State of Bahia and adjoining regions. His work covered vast areas, not only in Bahia but in the States of Alagôas and Sergipe. Many thousands of square miles were examined, and the general geology as well as the mineral resources were carefully observed. The
Brazilian Government had followed these explorations with much interest; and realizing their important bearing on the industrial resources of the country, they employed Roderic Crandall, Doctor Branner's assistant, to continue the work after the latter had left Brazil.

Doctor Branner returned to Stanford after about six months' absence, but before long his desire to revisit Brazil returned, and in 1911 he started with a new party for the purpose of making a study of the geology and biology of the Brazilian coast in the neighborhood of the mouth of the Amazon River. Particular attention was given to the study of sea life on both sides of the vast volume of fresh water poured out by that river, and especially to its effect on the marine migration which moves along the coast from the shores of Pernambuco toward the mouth of the Amazon. The haunts and habits of the larger snakes in Brazil were also studied in detail and several specimens of boa were secured. In spite of many difficulties, various new discoveries were made on this expedition, and a number of important papers on special subjects were published.

In consequence of the numerous trips of Doctor Branner to Brazil the world to-day owes to his indefatigable efforts much of its geologic and other scientific knowledge, not only of the eastern part of the country in the States of Pernambuco, Alagóas, Sergipe, Bahia, Minas Geraes, and Rio de Janeiro, where he did a large part of his work, but also of almost every other part. On some of his trips he worked in conjunction with Dr. Orville A. Derby, an American geologist who had been engaged in geologic work under the Brazilian Government and under the government of the State of São Paulo for many years. Doctor Branner was assisted on some of his trips by H. E. Williams, who had been with him on the geological survey of Arkansas, and by Roderic Crandall, who had gone to Brazil with him and who in later years continued work which Doctor Branner had begun. Others of his own countrymen were also on occasions associated with him.

Doctor Branner was on most cordial terms with the Brazilian geologists, many of whom had done excellent scientific work and were always glad to cooperate with him. Some of his work was done jointly with them, and the noted Brazilian geologist, Dr. Miguel Arrojado R. Lisboa, was among his particular friends. Even with the officials of the Empire of Brazil and of the United States of Brazil which followed it, he was on terms of intimate good fellowship, and nothing illustrates this better than the passage of resolutions of condolence at the time of his death by the Chamber of Deputies of the Brazilian Government.

Doctor Branner throughout his whole career naturally took a great interest in the subject of earthquakes, but this interest was much stimulated after the earthquake in California in April, 1906. Soon after that calamity he was appointed by Governor Pardee a member of the State Earthquake Investigation Commission of California. In addition to this commission one of the direct results of the calamity of 1906 was the formation of the Seismological Society of America, of which Doctor Branner was one of the charter members. He was president of the society from 1910 to 1914, and was chairman of the publication committee from 1911 to 1921. In 1915, when widely divergent opinions were being expressed regarding the questions of earthquakes and landslides as affecting the Panama Canal, Doctor Branner was appointed a member of a committee of 10 which was commissioned by the United States Government to visit the Canal Zone and investigate these matters.

Most of Doctor Branner's seismological work, however, was done in California and in more or less direct connection with the Seismological Society. He was extremely active in all these investigations and accomplished important results in collecting data which could be practically applied in the limitation, and in some cases the avoidance, of the destruction caused by earthquakes and by the disastrous fires which often follow them as a consequence of broken water pipes. His work in this field was one of those remarkable accomplishments resulting from purely geologic research that characterized many of his investigations in other subjects.

Prof. Sidney D. Townley, of Stanford University, who is himself a leader in seismological research, in writing of Doctor Branner's connection with the Seismological Society, says, in its Bulletin for March, 1922, that "In the death of Doctor Branner, the Seismological Society has lost one of its staunchest supporters. He gave liberally of his time, energy, and funds in support
of seismological projects; he was the founder of the society's Bulletin, and it was he who provided the ideas and the ideals, the manuscripts, and the funds for the successful continuance of this publication through a difficult period of 10 years; it was he who obtained a gift of $5,000 for the society, and he who by never-tiring efforts trebled its membership; it was he who revived a nearly defunct society in 1910, and through 10 years of constant effort built up an organization of merit, worth, and usefulness."

After Doctor Branner had retired from the presidency of Stanford University he retained his home there and devoted much of his time to work on many scientific problems which his busy life had previously prevented him from finishing. During this period he completed a geological map of Brazil, which was published largely by the assistance of the Geological Society of America, and with the map he wrote explanatory texts both in English and in Portuguese. The great amount of geologic detail displayed over vast areas of country in this map is a mute but eloquent testimony to the research, the learning, and the untiring efforts of its author.

Doctor Branner was primarily a geologist, and his work covered a wide field in various branches of the earth sciences, including paleontology, stratigraphy, mineralogy, seismology, and economics; but he also accomplished important work in entomology, botany, and other branches of biology. He was one of the last of the old-time scientists who were learned in many branches of natural history, before the extreme specialization of modern times had made it necessary for a research worker to confine himself to narrow lines of scientific investigation.

In addition to his accomplishments as a scientist, he was a linguist of unusual ability, a remarkable educator, and a strong leader of men. As a linguist he was learned in both ancient and modern languages. Latin and Greek were thoroughly familiar to him; and in modern languages he was preeminent a scholar in Portuguese, in which he wrote a grammar for English-speaking people, a textbook of geology for the Brazilians, and an explanation of his geologic map of Brazil; as well as numerous geologic reports relating to that country. In his later years he translated from the Portuguese the History of the Origin and Establishment of the Inquisition in Portugal, by Alexandre Herculano. Other modern languages also came easily to him and assisted him greatly in his various travels.

Doctor Branner as an educator achieved remarkable success with the students who studied under him. His constant sympathy with them and his interest in their work did much to inspire that feeling of affection and loyalty preeminently observable in them. His forceful, fearless, and intensely intellectual personality, his wide experience in scientific research in many regions, his broad vision not only in his work but in his knowledge of men, gathered around him at Indiana University, on the Geological Survey of Arkansas, at Stanford University, and on numerous trips to Brazil, a group of followers which was truly wonderful, both in their numbers and in their professional success in later life. His students have spread over almost every part of the world, and an unusually large percentage of them have done honor to their instructor and chief. As he himself said in later years, in referring to certain honorary recognitions which he had received in his profession, the greatest honor of all is that which comes to one from having men "who have been his students doing good and honest work in every quarter of the globe."

Doctor Branner married, in 1883, Miss Susan D. Kennedy, of Oneida, N. Y., a graduate of Vassar College. They had three children, one a daughter, now married, and two sons. They all graduated from Stanford University; and his two sons and his son-in-law enlisted as volunteers in the American Army during the recent war with Germany. In a letter to the writer shortly afterwards Doctor Branner related how he also had tried to enlist but was not accepted on account of age. That never-failing spirit to face boldly and fearlessly whatever difficulties fell to his lot was with him to the last. He died on March 1, 1922, in his seventy-second year.

Doctor Branner was a member of numerous scientific societies and had in many cases received distinguished honors from them. He was a member of the National Academy of Sciences, the American Philosophical Society, the Geological Society of America (president, 1904), the Society of Economic Geologists; Seismological Society (president, 1910-1914); American
Institute of Mining Engineers; Washington Academy of Sciences; London Geological Society; Société Géologique de France; Société Belge de Géologie; Instituto Historico di São Paulo; Brazil Academy; Institute Historico Geographico do Brazil; and many other scientific organizations, and a Fellow of the American Association for the Advancement of Science (secretary, section E, 1888–9; vice president, 1890; president, Pacific division, 1916; chairman Cordilleran section, 1913). He was also an associate editor of the Journal of Geology.

Among the many scholastic and honorary degrees received by Doctor Branner during his career may be mentioned: B. S., Cornell, 1882; Ph. D., Indiana, 1885; LL. D., Arkansas, 1897; Maryville, 1909; California, 1915; Sc.D., Chicago, 1916. In 1911 the Hayden medal award was conferred upon him by the Academy of Natural Sciences of Philadelphia in recognition of his personal contributions to the science of geology.

The remarkably wide sphere of subjects studied by Doctor Branner, and on which he wrote to a greater or less extent, is shown by the following bibliography, comprising over 370 titles, arranged chronologically:
PUBLICATIONS OF JOHN CASPER BRANNER
1884-1921

1884

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1885

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1886

Notes upon a native Brazilian language. Proceedings of the American Association for the Advancement of Science, August, 1886, Vol. XXXV, pp. 529-530.
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1887

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The age of the crystalline rocks of Arkansas. Proceedings of the American Association for the Advancement of Science, 1889, Vol. XXXVII, p. 188.


1890

Some of the mineral resources of Northwestern Arkansas. Arkansas Gazette, Little Rock, Jan. 12, 1890; Arkansas Press, Jan. 19, 1890.


The sedilian sandstone of Fernando de Noronha. American Journal of Science, April, 1890, Vol. CXXXIX, pp. 247-257, 8 figs.

Geologia de Fernando de Noronha. No. 36 of the Revista do Instituto Arqueologico e Geografico Pernambucano. Pernambuco, Brazil, 1890, pp. 20-21, 1 map, 7 figs.


1891


1892


The training of a geologist. Third edition, 19 pp., San Francisco, 1892.


1893


1894


Os grãos de sal de Fernando de Noronha. Instituto Arqueologico e Geographico Pernambucano, 15 figs. Pernambuco, Brazil, 1894.


1895


1896


1897


Geology in its relations to topography. Proceedings of the American Society of Civil Engineers, Oct., 1897, Vol. XXIII, No. 8, pp. 473-495; 1 plate, 16 figs.


On the reporting of values to land owners by the State Geologist of Arkansas. Hot Springs News, July 12, 1897.


1898

Geology in its relation to topography (with discussion). Proceedings of the American Society of Civil Engineers, June, 1898, Vol. XXXIX, pp. 53-95, 2 plates, 16 figs.


The Spanish University of Salamanca. San Francisco Chronicle, July 17, 1898, p. 12, illustrated. Maryville College Monthly for 1898, Maryville, Tenn.

Syllabus of elementary geology. 300 pp., 18 plates and 51 figs. Stanford University, 1898.


1899


1900


(With J. F. Newsom.) Syllabus of economic geology, second edition, 368+88 pp., 141 figs. Stanford University, 1900. (March 15th.)


1901


1902

(With J. F. Newcom.) The phosphate rocks of Arkansas. Bulletin 74, Arkansas Agricultural Experiment Station, Professor R. L. Bennett, Director, pp. 59-123. Fayetteville, Ark., Sept., 1902. 23 figures in text; 15 analyses.

1903

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1904

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From school to college. Stanford University, 1905. Address to the students of Stanford University, Sept. 6, 1905. No. III, 23 pp.
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1912


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1913


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William Russell Dudley: An address delivered at the memorial services held in the University chapel. Dudley Memorial volume, Stanford University, 1913. pp. 7-10.

1914

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Stanford Alumnus, May, 1914.
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1915

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Annual report of the president of the university for the 24th academic year ending July 31, 1915. Trustees series No. 29, 1915.
Address to the student body. Stanford University, Sept. 7, 1915.

1916

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1917


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1918

Address at the reunion of the descendants of Casper Branner of Virginia, held at Forestville, Virginia, Aug. 30, 1918. New Market, Va., 1918. 24 pp.


1919


1920


Herbert Hoover as an educational illustration. Address delivered at the banquet offered Herbert Hoover by the Alumni of Stanford University at San Francisco, Dec. 29, 1919. Stanford Illustrated Review, Jan., 1920.


In addition to the seismological publications of Doctor Branner already mentioned, he was the author of a number of notes and reviews in the bulletins of the Seismological Society of America from 1910 to 1920. Some of these were not signed.

1921


