NATIONAL ACADEMY OF SCIENCES

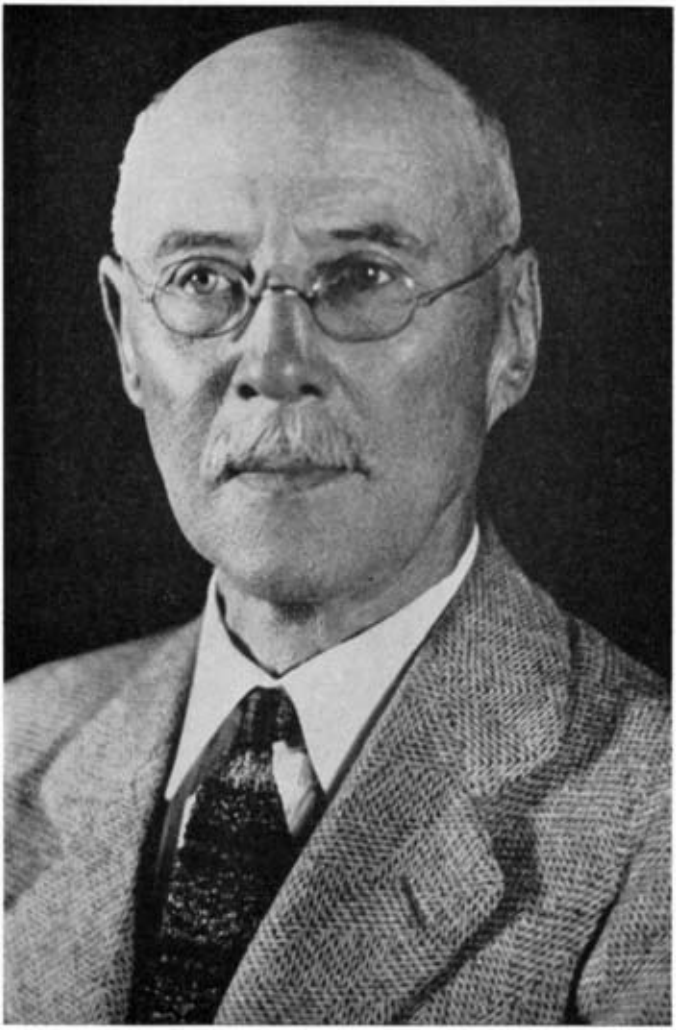
WILLIAM TRELEASE

1857—1945

A Biographical Memoir by

LOUIS OTTO KUNKEL

Biographical Memoir



WILLIAM TRELEASE

February 22, 1857–January 1, 1945

BY LOUIS OTTO KUNKEL

WILLIAM TRELEASE is known as a plant taxonomist but his early interest in natural history indicated a preference for other fields. His first papers dealt largely with pollination of plants by insects and birds. Other early publications were on bacteria, parasitic fungi, and plant diseases. Some were entirely entomological. His thesis for the Doctor of Science degree at Harvard University was on "Zoogloeae and Related Forms." It probably was the first in this country in the field of bacteriology. But his later and perhaps deeper interests were in taxonomy.

It is said that each epoch brings forth leaders to meet the demands of the time. A hundred years ago and for several decades thereafter the vast central and western portions of North America were being settled by pioneers who established homes in the forests and on the prairies. They also built cities but these remained relatively small for many years. Most of the scanty population lived on farms.

It is not easy to picture or to comprehend fully the conditions and needs of those years. Americans of that time lived close to nature and were of necessity familiar with their local floras. They were in almost daily contact with species of both wild and cultivated plants that provided food, clothing, shelter, and medicines. Identification of plants yielding medicinal products was so important in the period 1875 to 1885 that botany in most colleges of that decade was an adjunct of medicine. The pioneers built houses of logs and from plant

fibers wove cloth that was often colored with plant stains. The wagons used in going from place to place were drawn by oxen, slow-moving animals that allowed their drivers time to observe the countryside and the plants that grew there. The pioneers' firsthand knowledge of plants and interest in plants went far beyond the average botanical interests and accomplishments of today among people who predominantly live in cities, work in industries, and travel in fast-moving vehicles. But although the pioneers knew plants and made extensive use of them, they generally were unfamiliar with scientific names and classifications. That this need was felt at an earlier time in the east is revealed vividly by statements made in a speech by Dr. James Hall, the then Director of the New York State Museum of Natural History, at a banquet in St. Louis in 1893. Referring to his boyhood education, he said: "I appealed in every direction for some information, some instruction which would give me a clue to the names of the flowers and shrubs. . . . I knew from my reading, even though a boy, that there were names to flowers, that they had names by which they could be known everywhere. . . . I appealed to the teacher of my academy, who was a graduate of Harvard University, in vain for some instruction which would teach me the names or the manner or mode by which I could learn the names of those plants which I was so interested in collecting, but it was not to come to me, it was not to be had." There was, indeed, a great need to identify species that already had been named and to name and classify species that were new and seen by scientists for the first time in this new land. Hence, it is not surprising that early American botanists, who more often than not were students of medicine, in attempting to meet this need became taxonomists, nor is it surprising that Trelease in spite of other scientific interests made the identification, naming, classification, and geographical distribution of plants the chief labor of a long and busy life.

Trelease was born at Mount Vernon, New York, on February 22, 1857. He died at Urbana, Illinois, on January 1, 1945, in the eighty-eighth year of his life, leaving a widow and four sons. He married

Julia M. Johnson, daughter of Hiram and Maria S. (Briggs) Johnson, at Madison, Wisconsin, on July 19, 1882. To them were born four sons and a daughter,—Frank Johnson, Sam Farlow (deceased), Sidney Briggs, William, Jr., and Marjorie (deceased). His parents, who were of Cornish and Dutch ancestry, were Samuel Ritter and Mary Elizabeth (Gandall) Trelease; they, also, lived to ripe old ages. His grandparents were William and Margaret (Doremus) Trelease and John and Mary (Tyler) Gandall. His father was a pattern cutter in a metal-working establishment. His mother's family on both sides included millwrights and builders. It might have been expected that he would join one of the metal-working or building trades. He did, in fact, serve an apprenticeship in a machine shop where he acquired mechanical skills. However, his interest in learning and especially in natural history overbalanced any inclination he may have had toward mechanical things.

Trelease was brought up in the Methodist Episcopal Church and his early education was in public schools at Mount Vernon, New York, and in a high school that replaced an old academy at Branford, Connecticut. His liking for hunting and fishing took him into the country and stimulated an interest in collecting plants, insects, and other natural objects. His preparation for college was done largely at home on his own initiative but he was aided by some courses offered at a newly opened evening high school in Brooklyn, New York, where he lived at the time. In the autumn of 1877 he entered Cornell University which seemed to offer special opportunities in natural history. He graduated in the spring of 1880, at the age of twenty-three, taking a B.S. degree. His intellectual ability and great capacity for work were recognized there. Although he was an assistant in botany during most of his stay at Cornell and for a short time had charge of laboratory work in botany and entomology, he managed to complete the course in three years. Moreover, he prepared and published several papers during those years. In his junior year he was first employed as a scientist when commissioned under the title of Special Agent of the United States Department of Agri-

culture to study the most destructive insects of cotton. During this year and part of the following year he was an Assistant in the Division of Entomology of the United States Department of Agriculture. At Cornell he met and was closely associated in the Greek letter fraternity Delta Upsilon with two other students who were to become famous American scientists. They were Leland O. Howard and Theobald Smith.

In the autumn of 1880 Trelease entered Harvard University for graduate work. At Cornell and Harvard he came under the influence of such eminent entomologists as John H. Comstock, Hermann A. Hagen, Samuel H. Scudder, and Edward L. Mark. His scientific interests at the time were shaped largely by the writings of Charles Darwin and of Herman Mueller who at that time was reporting work on the pollination of flowers. He studied parasitic fungi under William Gilson Farlow and systematic botany under Asa Gray.

Trelease was appointed an instructor in botany at the University of Wisconsin in 1881. Here in association with W. A. Henry he developed courses in horticulture, forestry, bacteriology, economic entomology, and systematic botany. His work at Wisconsin must have been appreciated for he was promoted to a Professorship there and made head of the botany department in 1883. If he had remained at Wisconsin he undoubtedly would have expanded work in bacteriology for he was especially interested in this subject and the University authorized him to order special bacteriological equipment from Europe. However, shortly after placing the order, he was offered and accepted an appointment as Engelmann Professor of Botany at Washington University in St. Louis, Missouri. The decision to leave Wisconsin after such a brief but successful stay undoubtedly marked a turning point in his career. His subsequent researches were almost entirely on the taxonomy of flowering plants. But, that he retained an active interest in bacteriology is shown by the fact that in 1889 he worked for a brief period with Robert Koch in Berlin and during that year opened a bacteriological laboratory for physicians in St. Louis. This was before the subject was taught in medical schools.

The magnet that drew Trelease to St. Louis was a botanical garden established by Henry Shaw, a wealthy St. Louis merchant who had endowed a professorship in the Henry Shaw School of Botany that was to be developed at Washington University and had made a will providing that the beautiful garden located on a 75-acre tract that was part of his estate and known as Shaw's Garden would, on his death, pass to a Board of Trustees together with a generous endowment for its further development and maintenance.

There is ample evidence that Trelease was reluctant to leave Wisconsin and that he made the decision to leave only after being convinced of the advantages for research and teaching that would be afforded by Washington University and Shaw's Garden. He accepted the Headship of the Henry Shaw School of Botany only after making two trips to St. Louis to discuss the project with Mr. Shaw, and on being advised to do so by his former teacher Asa Gray. Leaving Wisconsin at the end of the summer of 1885, he launched the new school and began his long stay in St. Louis.

Henry Shaw died on August 25, 1889, and shortly thereafter the first Board of Trustees met and, as had been planned by Shaw himself, appointed Trelease Director of the Missouri Botanical Garden. His administration of the Garden over a period of about twenty-three years was marked by sustained and almost heroic efforts to meet the wishes and fulfill the dreams of its founder. When he took over management of the Garden he found much that needed to be done, streets were without sidewalks, roads were unpaved, stone walls were crumbling, plant houses were in bad condition. Mr. Shaw's residence was out of repair and there was need for city water. In spite of these handicaps and limited funds, Trelease moved Shaw's town house to the Garden, as was provided for in Shaw's will, and built an addition thereto, repaired the stone walls, built a stone cottage at the main entrance to the Garden, assembled an extensive living plant collection, an herbarium, and an excellent botanical library. Shortly before resigning his Directorship in 1912, he completed plans for the building of a new conservatory.

In twenty-three Annual Reports made to the Board of Trustees of the Garden he recorded his accomplishments and those of his associates. He secured permission to sell adjoining lands from the Supreme Court of Missouri. The lands were improved and gradually disposed of. Finally, the yearly income of the Garden reached about one-quarter of a million dollars. Throughout the period he steadfastly pursued those policies that made the Missouri Botanical Garden well and favorably known not only in Missouri and the United States but throughout the world.

On severing his connections with the Botanical Garden and Washington University, Trelease traveled in Europe where he continued his researches in numerous herbaria and libraries. He returned to the United States in 1913 to head the Department of Botany of the University of Illinois. Here, relieved of some of the burdens of administrative duties that had taken so much of his time in St. Louis, he continued his career as an inspiring teacher and highly productive research worker until 1926 when he retired with the title of Professor Emeritus at the age of seventy. However, retirement did not bring Trelease's research career to an end. During the remaining years of his life he pursued taxonomic studies as persistently as ever, going regularly to his office to within a few weeks of his death.

The following episode shows the intensity with which Trelease worked even after retirement. One Saturday morning on a hot summer day several years after he had retired, a former student who had worked at the Missouri Botanical Garden visited the University of Illinois. He was told that members of the staff of the University were away on vacation and that he would find no one there except janitors. As the visitor walked down a deserted corridor in one of the buildings, he saw on a door the name WILLIAM TRELEASE. In spite of assurances from his guide that no scientists were around, he nevertheless knocked on the door. A cheerful voice said "Come in." There he found his old friend and teacher, lens in hand, poring over herbarium specimens and making notes. After a pleasant chat the visitor said, "Professor Trelease, I think you should be taking a vacation

during this hot weather." "That is what Mrs. Trelease thinks, also," the Professor said, and added, "but I must finish this paper on the Piperaceae before going away." The former student knew him well enough to guess that when he did go away on vacation, it would be to observe and collect plants belonging in the Piperaceae or some other family, for the collecting of plants was his hobby, if he can be said to have had one. In pursuit of this hobby he made botanical explorations in practically all parts of North America and in the Azores, Madeira, Teneriffe, southern Spain, New Zealand, and the West Indies.

Trelease was a many-sided man. In fact, his chief characteristic was said to be versatility. Although quick-tempered, he was good-natured, pleasant, and courteous when circumstances permitted. He followed a set pattern of excellence in all he undertook and was marvelously diligent. In speaking on the subject of opportunities in botany in an address as retiring President of the Botanical Society of America in 1896, Trelease showed the quality of his thinking and his attitude toward science. In outlining a course to be followed by younger scientists he disclosed a formula that guided his own life and scientific work, saying that a man who was not entirely a student was little better than a dilettante in science. But if he was entirely a student and obtained proper training, he could, if fortunate in getting a position or in having private means, look forward to a lifetime of more or less uninterrupted opportunity for unearthing the wealth of discovery that came within his reach. He himself was entirely a student; he did get the best training available at the time, he did enjoy a lifetime of more or less uninterrupted opportunity, and he did unearth and record in a long series of papers a wealth of discovery. His scientific contributions are almost unique in that they came in a steady stream under about 300 titles over a period of approximately sixty-three years. In describing and naming about 2500 species and varieties of plants, he rendered a great service to the pioneers of the middle west and to botanical science in America and throughout the world.

There are some scientists so deeply interested in their specialties that they forsake all other interests. Trelease was not one of these. Although deeply devoted to research, he gave much time to his students and to local affairs in the communities in which he lived. He managed to acquire a personal estate that made him financially independent as he approached old age. In addition to his teaching and research activities, he served a wide variety of scientific organizations in many different capacities over many years. He was President of the Cambridge Entomological Society in 1889, of the Académie International de Géographie Botanique in 1896, of the Botanical Section of the American Association for the Advancement of Science in 1900, of the American Society of Naturalists in 1903, of the Botanists of the Central States in 1905, of the Academy of Science of St. Louis from 1909 to 1911, and of the Illinois Academy of Sciences in 1916. He was Chairman of the Organizing Committee and first President of the Botanical Society of America. After this Society was merged with other botanical groups in 1907, he was again elected to its presidency in 1918. He served on editorial boards of the entomological journal *Psyche,* the *American Naturalist,* and the *Botanical Gazette.* He also was for many years Chairman of the American Board of the international Botanisches Centralblatt. He was Secretary of the Wisconsin Horticultural Society from 1882 to 1885, and of the Academy of Science of St. Louis from 1896 to 1903. He edited the publications of those bodies for many years. He was a member of the Advisory Board for the publication of the *North American Flora* issued by the New York Botanical Garden.

Trelease was a correspondent for the Academy of Natural Sciences of Philadelphia, the Société Botanique de France, the Deutsche Botanische Gesellschaft, the National Geographic Society, the Philadelphia College of Pharmacy, the Société Centrale Forestierede Belgique, the Société Botanique de Copenhagen, the Société Royale de Botanique de Belgique, and the Société Nationale des Sciences de Cherbourg. He was a life member of the Botanical Society of America, the American Association for the Advancement of Science, the

American Pomological Society, and the Swiss Association pour la Protection des Plantes.

Trelease was also active in the civic affairs of the City of St. Louis and the States of Missouri and Illinois. He served as Chairman of the City Planning Committee of the Civic League of St. Louis which started a movement for the development and beautification of the City. He was Secretary of the Round Table Club of St. Louis for eleven years. He also was a member of the Illinois State Board of Natural Resources and Conservation under which the Geological Survey, the Natural History Survey, and the Water Survey functioned. He represented Missouri as Honorary Commissioner at the Buffalo and Charleston Expositions.

Trelease was the recipient of many honors. His name is commemorated in the fungus genera *Treleasia* and *Treleasiella* and in the seed plant *Neotreleasia in the Commelinaceae.* He was made an Associate Fellow of the American Academy of Arts and Sciences in 1893, was elected to membership in the National Academy of Sciences in 1902, and of the American Philosophical Society in 1903. Also in 1903 he was made an honorary member of the scholarly society of Phi Beta Kappa. He was the first Chairman of the Section of Botany when that section was established in the National Academy of Sciences, and was one of five of its members charged with the preparation of a volume covering the activities of the Academy in the first fifty years of its existence. He also served on the Council of the American Philosophical Society and was a member of the Society of Sigma Xi and of the National Institute of Social Sciences. He was given an honorary degree by the University of Wisconsin in 1902, by the University of Missouri in 1903, and by Washington University in St. Louis in 1907.

Finally, on June 7, 1933, the National Geographic Board in a unanimous decision designated an unnamed mountain near Georgetown, Colorado, on the Loveland Pass Highway in Clear Creek County, where he had collected plants in 1886, as Mount Trelease. This mountain, having an altitude of 12,503 feet, is located in the vicinity

of other peaks named in honor of those other great early American botanists Gray, Engelmann, and Torrey. He is reported to have esteemed this honor above all others, which is understandable for there are indeed few who leave monuments that reach so high or will endure so long. However, in his numerous and voluminous monographs and in shorter papers describing, classifying, and naming plants, he left a monument even more enduring than a mountain. He met, in an extraordinarily thoroughgoing way, a great need of the time in which he lived.

KEY TO ABBREVIATIONS

Am. Bee J.=American Bee Journal
Am. Entom.=American Entomologist
Am. Florist=American Florist
Am. J. Bot.=American Journal of Botany
Am. J. Sci. & Arts=American Journal of Science and Arts
Am. Nat.=American Naturalist
Ann. Conserv. & Jard. Bot. Genève=Annuaire du Conservatoire et du Jardin botaniques de Genève
Ann. Jard. Bot. Buitenzorg=Annales du Jardin botanique de Buitenzorg
Ann. Mo. Bot. Gard.=Annals of the Missouri Botanical Garden
Ann. Rep. Wis. Agr. Exp. Sta.=Annual Report, Wisconsin State Agricultural Experiment Station
Bibliogr. Contr. Libr. Harvard Univ.=Bibliographical Contributions, Library, Harvard University
Bot. Gaz.=Botanical Gazette
Bot. Jahrb.=Botanische Jahrbücher
Bull. Geol. Soc. Am.=Bulletin, Geological Society of America
Bull. Soc. Bot. France=Bulletin de la Société Botanique de France
Bull. Soc. Sci. Nat. de l'Ouest de la France=Bulletin de la Société des Sciences Naturelles de l'Ouest de la France
Bull. Torrey Bot. Club=Bulletin of the Torrey Botanical Club
Canad. Entom.=Canadian Entomologist
Contr. Dept. Pharmacy, Univ. Wis.=Contributions, Department of Pharmacy, University of Wisconsin
Contr. U.S. Nat. Herb.=Contributions from the United States National Herbarium
Cornell Rev.=Cornell Review
Cycl. Am. Hort.=Cyclopedia of American Horticulture
Fedde, Repert.=Fedde, Repertorium
Field Mus. Nat. Hist., Bot. Ser.=Field Museum of Natural History, Botanical series
Florists' Exch.=Florists' Exchange
Gard. & For.=Garden and Forest
Harriman Alaska Exped. Rep.=Report of the Harriman Alaska Expedition
J. Am. Med. Assn.=Journal of the American Medical Association
J. Arnold Arb.=Journal of the Arnold Arboretum
J. Mycol.=Journal of Mycology
J. Wash. Acad. Sci.=Journal of the Washington Academy of Sciences
Mem. Boston Soc. Nat. Hist.=Memoirs, Boston Society of Natural History
Mem. Brooklyn Bot. Gard.=Memoirs, Brooklyn Botanical Garden
Mem. Nat. Acad. Sci.=Memoirs, National Academy of Sciences

Nat. Acad. Sci., Biogr. Mem.=National Academy of Sciences, Biographical Memoirs
Pharm. Era=Pharmaceutical Era
Pharm. Rev.=Pharmaceutical Review
Pop. Sci. Monthly=Popular Science Monthly
Proc. Am. Assoc. Adv. Sci.=Proceedings, American Association for the Advancement of Science
Proc. Am. Phil. Soc.=Proceedings of the American Philosophical Society
Proc. Boston Soc. Nat. Hist.=Proceedings, Boston Society of Natural History
Proc. Calif. Acad. Sci.=Proceedings of the California Academy of Sciences
Proc. Ind. Acad. Sci.=Proceedings of the Indiana Academy of Science
Proc. Nat. Acad. Sci.=Proceedings of the National Academy of Sciences
Proc. Soc. Prom. Agr. Sci.=Proceedings of the Society for the Promotion of Agricultural Science
Rep. Am. Carn. Soc.=Report, American Carnation Society
Rep. Minn. Hort. Soc.=Report, Minnesota State Horticultural Society
Rep. Mo. Bot. Gard.=Annual Report, Missouri Botanical Garden
Rep. Mo. Hort. Soc.=Report, Missouri State Horticultural Society
Rep. U.S. Dept. Agr.=Report, United States Department of Agriculture
Rev. Sudamer. Bot.=Revista Sudamericana de Botanica
School Sci. & Math.=School Science and Mathematics
Sci. Monthly=Scientific Monthly
Smithsonian Rep.=Annual Report, Smithsonian Institution
Stand. Cycl. Hort.=Standard Cyclopedia of Horticulture
Studies, Biol. Lab., Johns Hopkins Univ.=Studies, Biological Laboratory, Johns Hopkins University
Trab. Mus. Nac. Hist. & Jard. Madr. Ser. Bot.=Trabajos del Museo Nacional de Historia Natural y Jardín Botánico. Serie Botánica
Trans. Acad. Sci. St. Louis=Transactions, St. Louis Academy of Science
Trans. Ill. Acad. Sci.=Transactions, Illinois State Academy of Science
Trans. Wis. Acad. Sci.=Transactions, Wisconsin Academy of Sciences, Arts and Letters
Trans. Wis. Hort. Soc.=Transactions, Wisconsin State Horticultural Society
Weekly Med. Rev.=Weekly Medical Review

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