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OF

ROLAND THAXTER

1858-1932

ΒY

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ROLAND THAXTER

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BY G. P. CLINTON

So far as the writer has been informed there have been written only four biographies, more or less extended, of Professor Roland Thaxter since his death at Cambridge, Massachusetts, on April 22nd, 1932. Two of these appeared in the official publications of Harvard University. One of them, published in the Harvard University Gazette of January 7, 1933, is a minute on his life and services placed upon the records of the Faculty of Arts and Sciences and was written by his fellow botanists at Harvard-Professors Fernald, Robinson and Weston. The second, signed by "H.W.H.", was printed in the Seventh Report of Secretary, Harvard Class of 1882, of which Thaxter was a member. The remaining two articles are by Professor W. H. Weston, Jr., who was Dr. Thaxter's successor at Cambridge. These last two are more extended and are illustrated by three pictures,-two taken by Weston at the time of Thaxter's 70th birthday at Kittery Point, mentioned here later, and the third, taken about the same time, in his laboratory at Cambridge. As all of these show Thaxter as an older man, we use a photograph showing him in his prime taken over thirty years ago. From the preceding sources and our acquaintance with Professor Thaxter and his writings, we present the facts given here.

To write intelligently about a person, one should know something about his ancestry, training, ambitions and the work he accomplished. We believe that from all of these sources Roland Thaxter received or made the elements that contributed to his success as a famous botanist and a successful man. To start with he came from a New England ancestry that was much ahead of that of the average individual. His father, Levi Thaxter, was a Harvard graduate, a lawyer and a student of the poet Browning whose works he brought to favorable attention of the American public. Furthermore, Roland Thaxter's grandfather and great grandfather, on the paternal side, were educated men as indicated by their graduation from Harvard. His mother, Celia (Laighton) Thaxter, was prominent in the literary world as shown by her books—"Among the Isles of Shoals," "Poems," "An Island Garden," illustrated by Childe Hassam, and "Letters of Celia Thaxter," edited by two of her many friends. We understood that his uncle, Oscar Laighton, also wrote concerning "Ninety Years on the Isles of Shoals" since his father and Thaxter's grandfather had been a lighthouse keeper at White Island, and Oscar Laighton had spent many years there and at Appledore, another of the islands.

It was in sight of these islands that Roland Thaxter made his summer home at Kittery Point, Maine. From his mother he evidently inherited his artistic tendencies and from his father his regard for scientific accuracy and from both his interest in nature. From his mother he also received his love for the sea. This was very deep seated as indicated in her writings, especially her first poem called "Landlocked." In a department store at Boston over thirty years ago, the writer purchased a print of White Island Light with Celia Thaxter's picture in one corner and the last verse of her poem which reads:

> "O Earth! thy summer song of joy may soar Ringing to heaven in triumph. I but crave The sad caressing murmur of the wave That breaks in tender music on the shore."

This very sentiment reflects the nature of her son, a quiet, imaginative man who loved the sea and life not for their boisterous moments but for the quiet, more useful periods, yet who, with his mother, knew the hardships of both life and sea.

So when Roland Thaxter, third son and youngest child of Levi and Celia Thaxter, was born at Newtonville, Mass., on the 28th of August in 1858 he inherited the mental traits to give him a good start on his way to fame if he chose to make the necessary sacrifices. That he was anxious thus to succeed is shown by his work at the old Alden school at West Newton, the Boston Latin school, and a private school at Cambridge, as well as at Harvard University. From the latter he graduated with the class of 1882 with an A.B. degree, having *Magna Cum Laude* honors. The year after graduation was said to have proved somewhat unprofitable to him because of illness. In the fall of 1883 he entered the Harvard Medical School, where he spent part of two years studying medicine.

Before completing his medical course he received a Harris Fellowship in the Harvard Graduate School and so from 1886 to 1888 he was Professor Farlow's assistant in Cryptogamic Botany as well as working on the thesis for his doctor's degree. Previously he had published several small papers (listed here, I-10) relating to insects. His first important paper (II) was that describing the species of Gymnosporangium and connecting them with their Roestelia stages, published in 1887. This investigation no doubt was inspired by the previous work of Farlow. Thaxter's doctor's thesis (12), published in 1888, was along a line he was most interested in and was entitled "The Entomophthoreae of the United States." Both of these papers showed that here was a young man who was on his way to make a name for himself. The latter paper also revealed that he was a botanist with unusual artistic merit as indicated by the fine. accurate drawings shown in the eight large plates that accompanied the monograph.

In 1887 Dr. Thaxter was married to Mabel Gray Freeman, and in the early summer of 1888 he came to New Haven, having been appointed botanist of the Connecticut Agricultural Experiment Station. Concerning Thaxter's appointment to the Station, "H.W.H." writes about the recommendation and acceptance as follows: "'He is a competent botanist but he is given to imagination'—'That is just the sort of man we want,' said Professor Johnson, then head of the Station."

During the comparatively short time Thaxter was at the Station he accomplished much pioneer but valuable work. While this Station was the first one to be established in the United States, its work at the beginning was chiefly along chemical lines and the botanical department was not started until after the Hatch Act was passed for all of the State Stations. So Thaxter was not the first Station botanist in this country but rather was Arthur, then of the Geneva Station in New York, the second Station to be established. While at New Haven, Thaxter attended the 4th Annual Convention of the Association of American Colleges and Experiment Stations held in the fall of 1890 at the University of Illinois, where the writer was just starting on his botanical career. Thaxter at the Botanical Section of this meeting, read a preliminary report on Potato Scab, later published by the Connecticut Station. This was one of the important papers of the meeting, according to Burrill, but so far as Thaxter was concerned his chief remembrance of the trip, as told later to the writer, was the prominence of the Illinois black mud.

The important investigations of Thaxter while at the Connecticut Station were the settling of the cause of potato scab (21), describing as new the fungus Oospora scabies (31); his studies of the fungi of Onions (19), especially onion smut, Urocystis Cepulae; his finding and describing the mildew of Lima beans, called *Phytophthora Phaseoli* (16, 19); and his pioneer spray work with fungi of potatoes, grapes and quinces (10, 26, 27). The Station still possesses his original preserved culture of the scab organism (26) and the inoculated potato with his famous R monogram on it. This might stand for either Roland Thaxter or Theodore Roosevelt, both Harvard graduates who studied under Farlow about the same time, and both interested in nature but going along different lines to fame. Thaxter while here also invented a knapsack spraver from a combination of a copper wash boiler and a hand pump with a Vermoral nozzle, a sample (26) of which is also on exhibition at the Station.

But Thaxter at heart was not a so-called "practical" botanist but rather was one of the "pure science" type. The best botanist is one who has both of these characteristics and Thaxter by his work showed that he was capable of being either. However, he liked the scientific rather than the practical side of botany as shown by his later studies when he chose for his life work those fungi that have a less practical bearing than the truly injurious forms with which pathologists usually deal. He liked, too, to throw out slight criticisms concerning the "squirt gun botanists," in which line he began his career, but in whom he really believed if their work was based on scientific principles. So when a chance came to return to Cambridge to teach and continue his pure science studies he took advantage of it. This change was no doubt of greater value to botany as a whole since in this position he was able to train men in the fundamentals of the science.

So from 1891 to the end of his life in 1932 Thaxter spent over forty faithful years in building up his beloved science of mycology, though during the last thirteen years he had largely retired from the teaching end. It is said that over a thousand students took his courses and because of his thoroughness most of these received valuable aid for their life work. However, it was chiefly through those who worked as graduate students that he did the most to further the science of mycology and incidentally of plant pathology. None of his courses was of the popular type and so they attracted few students who wished merely to get an additional credit for their university work.

While we owe much to Thaxter as a teacher, he made his greatest achievement as a botanist through his individual contributions to the science. According to the writer's belief, botany is the least dispensable of the sciences but, on the other hand, it is the least sensational and so the hardest through which a person can obtain great fame. If one is to believe what is usually written, the really great men of science were not botanists but rather astronomers, physicists, chemists, medical men or possibly an occasional zoologist who is interested in evolution. This is probably not due to the inferiority of botanists as scientists but because they work along practical rather than along theoretical or semi-sensational lines. Botany is primarily an observational science and while Thaxter was called a man with an imagination his first characteristic was accuracy and his next was thoroughness. With keen evesight for finding new things and a keener mind for searching for their essential characters, he stands, in the writer's opinion, among the really great botanists of all time.

After returning to Harvard, Thaxter continued his work on various unusual fungi, especially those found on insects, but gradually confined his efforts to that great order known as the Laboulbeniales. It was here that he became supreme and probably will always remain so, for though he was largely a pioneer in this group his work is not that of a pioneer. Whether the many genera and the hundreds of species he described will remain intact we do not know but, since men seem always to tear down whatever precedes them on this earth, no doubt there will be changes. However, it will take self confident and, we hope, brilliant men as well, to further investigate this group.

It was Thaxter's ability as an artist that also gave him prestige as a botanist not only with the Laboulbeniales but with his studies of other fungi which he usually illustrated with accurate and detailed pen-and-ink drawings. No doubt he was anxious to rival the Tulasne brothers for their work on "Selecta Fungorum Carpologia," though he did not have the experience of C. Tulasne in making his drawings directly on the copper engraving plates.

It was in the Proceedings and Memoirs of the American Academy of Arts and Sciences that Thaxter published most of the descriptions and drawings of the Laboulbeniales. In the Proceedings he published his first article (20) in 1890 and the last one (78) in 1920, twenty-one papers in all, and these were chiefly descriptions of new species and their relationships. In the Memoirs he dealt with Monographs (41, 58, 86, 87, 90) of the group in five large volumes, beginning with No. I issued in 1896 and ending with No. V in 1931 shortly before his death. While he did not finish his task as completely as he wished. still he was fortunate to go as far as he did with his poor health and failing eyesight. He also published in the Proceedings a few papers on other fungi, etc. The most important of these were his first paper (II) on fungi, dealing with the relationships of Gymnosporangium and Roesteliae published in 1887 and one of his last papers, entitled "A Revision of the Endogoneae," published thirty-five years later (82). The Academy, as well as Thaxter, should have credit for the generous reproductions of the excellent drawings made in the Memoirs. They represent many hundreds of species made in a total of 166 plates issued, number V of the series alone having 60 plates with over a thousand drawings.

On the whole Thaxter was an extensive traveler to various

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parts of the new world as well as in Europe. Everywhere he went he was looking for something new to collect in his line whether it was fungi on living plants and animals, in the streams, woods and fields, or fungi on insects in the various museums he visited. We have mentioned Kittery Point as a collecting place and also New Haven, where, besides the economical fungi, he collected others of less importance. One of these was a new species of smut, Urocystis hypoxyis (31) found in West Rock Park near Judges Cave on Star grass and which has rarely been found since. One of his earlier health and collecting trips was made in 1888 in the mountains of Tennessee and North Carolina to which he returned again in 1806. A result of these two trips was the finding of an unusual fungus that he later described as new under the name Wynnea americana (56). Even before these trips Weston records botanical and entomological trips that Thaxter made in Newfoundland in 1885 and to the White Mountains in 1886. During the winter of 1800-1801 he went to Jamaica where he secured numerous coprophilus fungi, two genera of which were of special interest and described as new in one of his articles (53). In his sabbatical year of 1897-1898, he collected in Florida and then went to Europe to study and collect Laboulbeniales in the museums of Paris, London and Oxford. He returned again to Europe in 1900 for similar work. He also made one or two other trips to Europe. His sabbatical year of 1912-1913 was partly spent collecting in the British West Indies.

It was around Cambridge, however, that he collected most frequently not only for himself but for his classes. Here he could find species of Gymnosporangia, fresh water inhabiting fungi (36, 37, 39, 40) as well as marine algae. The writer went with him on one of these collecting trips and had a hard time trying to keep up with the strides of his long legs. Through Thaxter's knowledge of this region and encouraged by his directions, we succeeded in finding new and interesting fungi as no doubt did others of his students.

It was during his sabbatical vacation in 1905-1906 to South America that Thaxter had his most extended and possibly his most interesting trip. He went as far south as the Straits of Magellen in the winter of 1906. A short account (59) of this is given in his "Notes on Chilean Fungi" published in the Botanical Gazeztte in December, 1910. An account of the trip was also made the subject of his talk to the Botanical Society of America, of which he was President in 1909. He took this office only on condition that he should make no set after-dinner Presidential address. Apparently much of the material he collected on this trip has not yet been worked up for publication.

Because of poor health Thaxter did not attend scientific meetings as frequently as did most other botanists. This was especially true in his later years when apparently he was pressed for time to accomplish the work he had laid out for himself. In 1896 he became associate editor of the Botanical Gazette and for eight years he continued in that capacity. Here he published most of his early and later articles that dealt with fungi outside of the Laboulbeniales. Perhaps the most important of his articles published in the Botanical Gazette was one dealing with a new order of Myxobacteriaceae (20) which appeared in January, 1893, and which was followed by two shorter articles on the same subject (43, 55). His last contribution to this publication was his biography of Professor Farlow whom he held in highest esteem. In 1907 he succeeded Farlow as the American editor of the Annals of Botany which position he held until his death. While he aided his students and his American colleagues in publishing articles in this British magazine, he never used it for his own publications.

It was not until 1901 that Thaxter was elected to a full Professorship at Harvard though we have understood that he received the salary sometime before, since Farlow had turned over most of the teaching to him. This was during the two years the writer was in attendance in his laboratory. Up to this time no one had received a doctor's degree under him so there was an impression among the advanced students that he was too critical in granting such degrees and the term "Thaxterized" was used to indicate this severity. However, this was really an indication that Thaxter was careful to whom he granted such honors. Furthermore, Thaxter was just as critical of the work of contemporaneous botanists if he did not believe that their publications indicated real merit. This criticism was not loudly spoken and was rarely made for general publication.

For a man of a retiring nature Thaxter received as many honors as usually come to famous botanists. There were named in his honor a genus (Thaxteria) and more than six species of fungi as well as two species of lichens. He was President of the New England Botanical Club, the Society of Plant Morphology and Physiology, the American Mycological Society, as well as of the American Botanical Society. He held membership in other American societies, such as the Natural History Society and the American Association for the Advancement of Science and was especially honored by election to the American Academy of Arts and Sciences, the American Philosophical Society and the National Academy of Sciences. He was also a foreign member of the Russian Mycological Society, Linnean Societies of London and Lyons, Royal Botanical Society of Belgium, Royal Academies of Sweden and Denmark, Botanical Society of Edinburgh, Academy of Science of the Institute of France, British Mycological Society and Deutsche Botanisch Gesellschaft. His greatest honor, apparently, was the conferring on him for his work on the Laboulbeniales of the Prix Desmaziers by the French Academy.

But what can be said of Thaxter as a man other than as a botanist and an artist? We know little of his activities outside of his profession as a teacher and an investigator. He certainly was no society man since he did not have the inclination to spend much of his time in such affairs. He was, moreover, a man who hated to waste any time on trivial or needless matters. Even Farlow, whom he reverenced as shown by writing four biographies of him, seemed frivolous of his time compared with Thaxter. During our graduate-student days Farlow each morning would go through the advanced laboratory into Thaxter's room and after a short period Thaxter would accompany him back to the former's room always in conversation, but it seemed to us that this also was an effort on Thaxter's part to save time. Even when a student went to Thaxter's room for help, the latter usually kept on with his work while listening to him. He was early to his work and usually late in quitting and in his summer vacation was usually collecting, studying his specimens or making drawings of them. When Blakeslee, Weston and the writer met him at Kittery Point, on the occasion of his 70th birthday, to present the volume of congratulatory letters from his former students and contemporary American and European botanists, we found him busy making the final drawings of the Laboulbeniales in the attic workshop of his summer home. His only complaint then was of his failing eyesight in slowing up this work.

In conclusion we can only add that here was a quiet, dignified man and a real scientist, possibly a visionary one as has been said, but to our mind one with the nature of a poet as expressed by his attractive smile that showed his pleasure rather than through an ordinary laugh. By a real scientist we do not mean the political scientist who agitates for laws concerning his occupation, nor an advertising one who seeks newspaper fame through so-called important discoveries, nor vet a director scientist who builds up some important institution through the generous contributions of outsiders and the work of sub-collaborators. But we do mean a scientist who made his own collections and when necessary the media on which he cultivated them, who studied them microscopically and made detailed drawings of them, and then wrote his papers for publication in current periodicals, all of this with little or no outside help or advice. It is of such a man that we write with admiration as a true, worthwhile scientist.

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