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Lucy Bishop Millington, nineteenth-century botanist: Her life and letters to Charles Horton Peck, State Botanist of New York

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Abstract

Lucy Bishop Millington (1825–1900) was born, lived, and died in the Adirondack Mountains country of northeastern New York State. She had a life-long interest in natural history, was a keen observer, was motivated by a never-ending curiosity, and made herself into a fine and knowledgeable botanist. She published more than a dozen natural-history notes and articles and was the first discoverer of the dwarf mistletoe, the parasite afflicting the black spruce of the Adirondack area.

During the last six years of her life Millington corresponded with and sent many plant specimens to Charles Horton Peck, State Botanist of New York from 1883 to 1915. Her heretofore unpublished letters, which have come to light from the files of the New York State Museum, tell us much about the flora of the Adirondack Mountains region as it was a century ago; give us a glimpse of 19th-century natural-history study at work; highlight the important contribution of the devoted amateur, frequently unrecognized, to our knowledge of our fauna and flora; and document the successful and productive relationship between the amateur and the professional before specialization invaded scientific inquiry.

From some meager records the history of Lucy Millington’s creative pioneering family can be pieced together. Against this background we can better understand her life as it is revealed in her published writings and letters. The result is a study in local history as well as a study of 19th-century botanical exploration.

Prologue

On a spring day in 1872 the lure of the out-of-doors was too strong for Lucy Bishop Millington to ignore. She wrote of that day: “Somewhere, away back among my forefathers, there must have been one reprobate who scorned the chimney-corner, and its daily round of small duties. For him the skies shone, the birds sang. The very beckoning of the leaves in the wind lured him away to the woods. Sometimes I feel the longing to rove idly about too painful to be borne, and, with a sort of desperation, set off for my nearest wilderness.”

Millington’s path of escape from the everyday world took her to a nearby wood where, along a network of small brooks, the veronicas were in bloom. Her goal was a spot she apparently knew well: a Sphagnum bog. She wrote: “Tufts of velvety ferns grow here and there among the tangle of undergrowth; and at last I plunge ankledeep into the marsh.” The moment called forth many memories: “No humble, familiar friend is able to wake in my mind so many delightful images of past scenes and pleasures as this dreary, commonplace, old graybeard of a moss [Sphagnum]. Long, long summer days of wandering, bird’s-nesting, botanizing, fishing and endless moss-trooping... come back to me when I unpack a box of plants, or a bundle of young trees, from their soft, moist envelope of moss; all the blueness of the skies, the singing of the wind among the pines, the bubble of the water under my footsteps, the dip of my bait as it touches the water of the trout-brook, and the tingle at my fingers’ ends, when the rod bends under the sudden spring of the fish. Oh! if soggy shoes, torn clothes, freckles, and sun-burn could give me back one day of the old vivid delight, I’d turn a vagabond at once.” And lamenting for the young people of the day “their scant opportunities for perfect vagabondage,” she confessed with un concealed yearning, “Here am I, with none too early
lines of silver in my hair, and the spirit strong in me yet.”

The locale of the incident described was doubtless the northeastern corner of New York State, an area Millington, the naturalist, knew so intimately and loved so well: the hills and valleys of the Adirondack Mountains in Essex and Warren Counties. Here she, Lucy Ann Bishop, was born, lived almost her entire life, and died. Here she had her roots.

The statistics gleaned from the usual sources are meager and bare and tell us no more of the substance of Lucy Millington’s life than the covers of a book tell of its contents. She has left us some published writings, however. More than a dozen are known: botanical notes in a scientific periodical, natural-history articles, a story for young people, and a commentary on the books of Thoreau and Flagg. Among her unpublished writings are the 39 letters Millington wrote during the last six years of her life (1894–1899) to Charles Horton Peck, State Botanist of New York, which are preserved with the Peck correspondence in the mycological collections of the New York State Museum in Albany. From Millington’s writings we can piece together many details of her life. But, more important, in her letters we become acquainted with the flora of the Adirondacks as it was a century ago; we see 19th-century botanical inquiry at work; and we find Lucy Bishop Millington—keen botanist, naturalist, and “lover of these hills.”

The Pioneering Bishops

The pioneer spirit was strong in the Bishops from their first arrival in America. James, the original Bishop immigrant ancestor, landed in Boston in either 1634 or 1635 and shortly moved to the settlement of New Haven, where he contributed in many important ways to the development of the community. Ultimately he became Deputy Governor of the Connecticut Colony. Succeeding generations helped develop new areas of the virgin country, as they gradually moved inland and northward. A fourth-generation Bishop, John, and his wife, Rachel Ruggles, lived in New Milford, Connecticut, but in 1774 struck out northward for the wild and unbroken lands of west-central Vermont. Here they pioneered and were among the first settlers of Monkton in Addison County. With them were their children, including Elijah, a lad of 11 years, later to become the paternal grandfather of Lucy Millington.

Elijah Bishop demonstrated early the qualities of leadership and creative independent action that were evident throughout his life and that literally were responsible for his survival as a youth. When he was 14 or 15 years old, the British attacked the town of Monkton and captured his father and brothers. Elijah escaped by feigning a limp. During the six years his family members were held prisoner in Quebec (1778–1784) Elijah assumed responsibility for his mother, younger brother, and sisters. Through his ingenuity in providing shelter and finding food the small group somehow survived the year of the raid. He served in various capacities throughout the war years and acted as a guide for the American troops in the Lake Champlain area.

In about 1788 Elijah married Tabitha Dorcas Holcomb and established a home in Monkton, where after the war his family had been reunited. But the desire to pioneer and to create and build anew was as strong in Elijah as it had been in generations of Bishops before him. At about this time his father-in-law, the Honorable Benjamin Holcomb, acquired 1,300 acres of land in New York State in Pleasant Valley, complete with a water source, the Boquet River. He sold to Elijah the middle third of the piece, over 400 acres. Elijah’s father had helped to create a new settlement; now Elijah would do likewise. In 1793 the young couple, with their two sons, Basil and Lucius, left Monkton, Vermont, crossed Lake
Figure 1. Northeastern New York State, where Lucy Millington lived and botanized.
Champlain, and made their home in Elizabethtown, Essex County, New York, the first Bishops to come to the area. Here Elijah and his sons founded the hamlet of New Russia, almost all of which was on Elijah’s property and where for more than a century some member of the Bishop family continued to live. In these hills and valleys, known intimately by her grandparents and parents before her, Lucy Bishop Millington grew up and botanized, a passion that remained with her throughout her entire life (Fig. 1).

Elijah Bishop became a prosperous and successful man. His saw mill contributed shelter and his grist mill provided food for his fellow townsfolk. Nor did he neglect their intellectual needs: “The falls of the [Boquet] river were on Elijah Bishop’s property and, damming the stream, he built a saw mill, a grist mill, and later a forge. The road from Schroon Lake to Plattsburg ran through his land, and on this road he built a large tavern. He was the most prominent and prosperous resident of the region, major of the military organization, and a man of wide charity. He was a talented musician, a mechanic of great ability, and a public benefactor on a generous scale. Among his public-spirited activities was the building of a school house, the hiring of a teacher, and the maintenance of the school at his own expense.” It was said of his wife Tabitha: “She was a woman of remarkable capabilities and sincere piety, a beautiful handwriter and able literary composer, intensely industrious and master of all the household arts, universally beloved by her friends and neighbors.”

Of Elijah and Tabitha Bishop’s children it was Lucius who made his home on the family property in New Russia and took care of his father in his old age. In 1822 he married Anne Sheldon from Westport, a village ten miles or so to the east on the shore of Lake Champlain. Eight children, of whom Lucy Ann was the second, were born over the next 18 years. Lucius listed farming as his occupation in the 1850 Elizabethtown–New Russia census, and in addition to himself, his wife, seven of the children, and one grandchild (Lucy’s three-year-old son), the household included six others, either boarders or workers. In 1860, according to the census, the Lucius Bishop farm was still in full operation, but with changes in the family structure: Lucy and her family had left home, and son Midas had married and established his own farm. Lucius died in 1864; Anne remained on the farmstead the rest of her life.

These bare vital statistics tell us nothing about Lucius and Anne Sheldon Bishop as people. Surely they were industrious and steady folks. In addition to the farm, Lucius owned and operated in New Russia a hotel, two saw mills, a grist mill, and a whiskey distillery (rum was made from maple sugar). He was an accomplished blacksmith and did all the iron work for the grist mill. Lucius was described as “always maintaining a high standing for intelligence and worth” and as “a man of considerable genius.” None of this prepares us for the unusual intellectual qualities and very considerable talents that distinguished the family Lucius and Anne Bishop raised: writers; artists; creative thinkers; a physician; a knowledgeable, discerning botanist—a family dubbed “the American Brontes” by William Cullen Bryant. Bryant spent one or more summers in Elizabethtown in the 1860s, when the Adirondack region was a favorite place for artists—students as well as those already accomplished, both men and women. His acquaintance with Annette, Amy, and Bainbridge Bishop prompted the family characterization. These three were much at home with the artists who came to work and study in the area, and their talents blossomed and found direction from the association. In the 1860 Elizabethtown–New Russia census they listed themselves as painters, but in the 1870 census Annette and Amy were desig-
nated as portrait artists, and Bainbridge was called a landscape artist. It is doubtful that Bryant knew Lucy Bishop, although she would have fit well his Bishop family image. Lucy had long since left New Russia: she had married Stokes P. Millington in 1846, and by the 1860s they made their home in Glens Falls, New York.

Little has been written about Lucy Millington. Much more has been said about her artist sisters and brother. The biographical source that describes Annette as a “literary and artistic genius” and notes her talent and beauty lists Lucy Ann only by name and without comment.2 The speaker at the dedication of the Bishop family memorial in 1929 in New Russia, Judge Augustus Hand, dwelt at great length on Bainbridge’s creative talents, his success as a farmer and neighbor, and his philosophic perception. He spoke with appreciation of Annette’s unrestrained imagination and poetic talent and of Amy’s art works. Hand had not known Lucy, so she is referred to only briefly. His comments take on some significance, however, when we find that they constitute one of only two known published references to Lucy Bishop’s abilities and interests. Hand said: “Lucy, an older sister of Annette and Amy, married Stokes Millington and left Elizabethtown long before my time. She, too, was talented, and one of the most clever men in my class in college who had known her intimately, was never tired of talking of her unique personality. She was a skilled botanist and is said to have assisted Asa Gray in his work.”3 We can only lament not knowing who the “clever man” was to whom Hand referred. The other account we have is more important: a recollection by Liberty Hyde Bailey, the eminent horticulturist, of his friendship as a young man with Millington, who was the first botanist to come into his life. Her influence upon him was long-lasting, and his memories of her never dimmed.4

Four obituaries appeared in the local news-
papers when Millington died.5 In one of these notices her “large amount of general knowledge” in the sciences was briefly mentioned, but, on the whole, that she came of pioneering stock and married and bore children seemed to be all that mattered. Or was it all that was understood? Unlike the more accepted pursuits of painting and writing, perhaps climbing mountains, wading through swamps and bogs, peering through a microscope, and discovering a previously undescribed plant species were simply outside the realm of things worthy of note or newspaper interest at the time. We can only conjecture on reasons for her apparent obscurity.

When the 20th-century artist Balthus was asked for some biographical material to accompany a showing of his work, he replied: “Balthus is a painter of whom nothing is known. Now let us look at the pictures.”6 Of course, something was known about Balthus, and something also is known about Millington. But Balthus’s approach is applicable in Millington’s case: “Millington is a botanist of whom nothing is known. Now let us look at her writings.” From them, and from legitimate speculation, we can put some flesh on the bare bones of biographical data.

The Making of a Botanist

... Fearlessness is in the nature of youth: else why had not the traditional bear been a terror to me when I explored the mountain-sides, and the densely-wooded outskirts of my favorite swamps?

—Millington (1872)7

Lucy Bishop came to know well the region around New Russia in Essex County, where she was born on 10 June 18258 (Fig. 2). Many years later she wrote of the “long, long summer days of wandering, bird’s-nesting, botanizing, fishing, and endless moss-trooping.” She was familiar, too, with the drumming of the partridge and the singing of the bush-
sparrow—"as I used to hear it years ago among the alder thickets." Apparently Lucy was drawn early to the out-of-doors. For a young person of such inclinations the countryside surrounding the Bishop farm in Pleasant Valley, through which the Boquet River flowed, must have been a paradise indeed (Fig. 3). We can surmise that she could not escape to it as often as she wished; doubtless she had her share of chores in a family of six children younger than she.

We know nothing about Lucy's early education. We can speculate that the Bishop children attended the school provided and maintained for the community by their public-spirited grandfather Elijah Bishop. But formal education among the Bishops was probably minimal. Judge Hand, who knew them, said that the Bishops were largely self-taught in everything.

Lucy spent the first third of her life in New Russia. It is safe to say that she had not seen much of the world beyond Essex County before she married Stokes Potter Millington on 10 February 1846, in Addison, Vermont. After residences in Elizabethtown and Warrensburg, New York, the couple and their children moved to Glens Falls, New York, probably in 1856, where they lived for many years. At a time when the short distance of four miles between New Russia and Elizabethtown was called "a decided barrier" by Judge Hand, who had lived there, the 60 or more miles to Glens Falls would have effectively made that region Lucy Millington's new life center. Twenty-five years later she re-
turned to her birthplace to make it her home once again.

We have little information about the middle 20 years of Millington’s life, nor does she leave us any clues in her writings. We know that she raised three children, two sons and a daughter. Perhaps her single known published story for young people, “Summer Days at Lake George,” has some autobiography in it. It tells of a mother’s adventures with her three teen-aged children and is replete with the writer’s knowledge of boating; fishing; and the plants, animals, and history of the Lake George area. We know, too, that these must have been years of exploring, plant collecting, continual observation, and, above all, intensive study, all of which produced the mature, knowledgeable botanist who came on the public botanical scene in 1871. Her letters in the fall of that year to the editor of the Bulletin of the Torrey Botanical Club reported her first, and probably most important, botanical contribution: her discovery of a new species, the dwarf mistletoe, the causative agent in the destruction of the black spruce in the Adirondacks. Her initial independent identification was later verified.

In the 1850s and 1860s botany was primarily a descriptive science in America. Professional and amateur botanists alike were occupied with collecting and identifying plants. Specimens were pressed, and herbaria were developed. In this pursuit an indispensable aid was the book Manual of the botany of the northern United States . . ., by Asa Gray of Harvard University. Millington owned a copy of Gray’s Manual; in it she recorded her “finds.” In addition, her library contained Alphonso Wood’s
Class-book of botany; a work by William Withering, probably his book on British flowering plants and ferns; the Apgars' Plant analysis; other "English and American botanies"; and "books on microscopic fungi that had such beautiful colored plates." Her reference materials may well have been more extensive. She also had a microscope. 25

Between 1871 and 1883 Millington contributed several notes to the pages of the Torrey Botanical Club's Bulletin.26 She continued her observations on Arceuthobium pusillum, the dwarf mistletoe, and provided the first description of seed dispersal in the species. She studied the permanence of variations in plants, a subject that still concerned her many years later. She wrote on the fungi and the ferns, the latter being one of her favorite groups of plants. About ferns she was particularly well versed—their growth habit, form, favored environment, and culture in gardens. Eaton noted her collections of Aspidium in both Essex County and near Glens Falls.27 She botanized in all seasons and knew the Adirondacks in winter as well as in spring and summer; in the Glens Falls area, where she lived; and around New Russia, 60 miles to the north. The difficulties of travel did not deter her. In 1873 and again in 1876 her name appeared in the Botanical directory of the Torrey Botanical Club. Between 1874 and 1898 Peck recorded her contributions to the New York State herbarium in several of his annual reports as State Botanist. In 1899 she became a member of the National Science Club for Women in Washington, D.C. She corresponded with several prominent botanists in addition to Charles Peck, among them Gray, Leggett, Meehan, Parry, and Engelmann.28

The Bishop pioneer spirit came to the fore in Lucy Millington in the mid-1870s. In the spring of 1876 she joined her brother Midas when he went west to South Haven, Michigan, to set up a medical practice. There she bought a peach orchard, returned to New York, and in the fall went back with her husband and young unmarried son, Frank. This Michigan interlude, which lasted about five years, has particular significance because it brought together Millington and Liberty Hyde Bailey, then a lad of 18 years, who was born and lived in South Haven. He later became the first dean and director of the experiment station of the New York State College of Agriculture at Cornell University and one of the most important horticulturists of his day. He had already discovered the world of plants and was enthralled with every new find. He had encountered problems in identifying species new to him, however, and word in the village that a botanist had come to live there was exciting news. He had never known a botanist. Bailey has left an account of this botanical friendship; it is one of the few glimpses of Millington we have through someone who knew her. She and Bailey shared walks through the pine woods and over the sand dunes near Lake Michigan. Her copy of Wood's Class-book of botany was his first botany textbook. They collected plants together, but she collected more than plants, according to Bailey; she had a microscope and studied infusoria. She encouraged him and resolved his questions. He wrote: "She always received me pleasantly, calmly, without haste. She listened to my joys of wonderful discoveries, told me the names of my plants and pronounced the strange words as if they were her common speech. She told me of her trips and her collecting in the Adirondacks whence she had come. She asked me to come again." Bailey never forgot Lucy Millington, and her influence remained with him throughout his life. Millington, too, never forgot the friendship.29

How many more pairs of eyes were opened to the world's natural wonders by Lucy Millington we of course have no way of knowing. People frequently brought or sent plants to her for identification, sometimes from far outside her area. Through her collecting she con-
tributed substantially to knowledge about the distribution and range of plant species in Essex and Warren Counties, where she wandered freely for so many years. We have no indication that she made a personal herbarium. She was not only a collector; she was at heart an inquirer, a constant and tireless observer.

Millington's questions of Peck and others must have sparked many an inquiry. Four letters written to Millington in 1882, two by Peck and two by Engelmann, illustrate this point well. Millington had sent both men specimens of Epilobium that had aroused her curiosity. She had observed unusual thick subterranean bulbs with fleshy scales on the root, which apparently were metamorphosed leaves acting as a food source for the young plant. Peck wrote: "... you have made an interesting discovery. ... I certainly had not noticed it before, nor do I find it mentioned in Torrey, Wood or Gray. ... I shall preserve these specimens and add them to the Herbarium [of the New York State Museum of Natural History]." Engelmann at first had no recollection of having seen this anatomical aberration in young Epilobium plants before. Millington jogged his memory, however, by quoting Peck's letter, which prompted Engelmann to reply: "Yes, Mr. Peck is right, and it was very forgetful in me, not to remember the same fleshy scales which I collected last year in the Rocky Mountains. ... Thanks that you revived the knowledge of this fact!"

Millington's interests in natural history knew no limits: they ranged from her study of microscopic fungi and the causes of diseases in fruits to the broader questions of lake blooms, selective cutting in forests, plant succession, the early vegetation of the earth, and Darwin's theory of evolution. Her curiosity was boundless. Always "But why, we keep asking ...," she wrote to Peck.

In an essay on Thoreau the naturalist, Millington wrote: "The facility which his habit of constant and minute observation gave him made every path he chanced to take a path of discovery. ... He had a true naturalist's delight in study. His pleasure in every plant he found for the first time was as sincere as it might have been if it were new to all the world." These attributes she recognized and could identify with; she knew them well. They were also her own.

In addition to being a place for scientific inquiry, the out-of-doors was for Millington a place of religious experience and spiritual renewal. She was a deeply religious person, but she found no inspiration in "the rows of fans over the straight pew-tops, whose dull drowsings accorded well with the drone of the voice speaking to them." Rather she sought the warm outdoor wind in her face. And again: "There are sweeter, purer lessons taught in the resurrection of the willows in April, than in many a well-meant religious book. The sordid cares, the jealousies and meannesses, of men are better blown away by the free winds of heaven, than by the breath of man in many and vexing words."

Nowhere is Millington's deep spiritual involvement with the natural world more poignantly revealed than in this reflection on the moment she realized that she had finally discovered the cause of destruction of the black spruce and that she was the first to do so. She had walked 15 miles to the swampy site: "There is one day of my life marked with a white stone. So few such days fall to the lot of man, that we do well to remember them. It was not a day of surprises, of feasting, of shows, or splendor; but rather one of loneliness, of silence, and contemplation. But then I drew nearer to the secret heart of Nature than ever before. The veil of mystery was drawn aside, and I saw what human eyes had not seen before: I touched what none had touched before me. Though all the world may now look on, mine was the first delightful thrill of recognition. ... In all one's lifetime scarce such a thing may happen again."
Millington continued botanizing—and inquiring, still asking, "But why ..."—to the end of her life. Although in poor health, and despairing that she could not do more, she never forsook the out-of-doors. In the late fall of 1899 she was planning to show Charles Peck her favorite rambles in the coming spring, and they were to investigate the disease that plagued the Bishop fruit orchards.

Lucy Bishop Millington died on 17 January 1900 in New Russia and is buried there on the hilltop that is the Boquet Cemetery. The monument that marks her grave is inscribed simply: "LUCY A. BISHOP / wife of / Stokes P. Millington / 1825–1900."

The Letters

Among Lucy Millington’s botanical correspondents was Charles Horton Peck, a native New Yorker like Millington (Figs. 4 and 5). He was born in Sand Lake, Rensselaer County; was educated at Union College; became teacher of mathematics, classics, and botany at Sand Lake Collegiate Institute; and later taught Latin and Greek at Albany Classical Institute. He became an accomplished classical scholar, but his real interest lay elsewhere. Again, like Millington, he had a great love for plants, which ultimately dictated his choice of a lifework. While teaching the classics he studied botany. He was ready to choose between the two disciplines when he was offered the position of botanist for the New York State Museum of Natural History in 1867, with the specific charge of improving and extending the scope of the state herbarium. For the next 48 years Peck devoted himself to this task. Through his efforts the herbarium became one of the most complete and extensive local collections in the country. He was particularly interested in cryptoamatic botany, and his collections of fungi, on which he was a foremost authority, especially the fleshy fungi, were among the most important additions to the herbarium.36

As botanist of the New York State Museum and later as State Botanist (1883–1915) Peck carried on a wide correspondence and received donations to the herbarium from fellow collectors not only in New York State, but also in all parts of the United States and Canada. He also gave practical advice to gardeners and farmers and answered innumerable queries. He was frequently consulted about fungus infections and diseases of plants, a subject on which he was an expert. Such a problem may have initiated the long botanical correspondence between Peck and Lucy Millington. Millington’s earliest known letters to Peck—two of them—were written in 1877 and 1878 from South Haven, Michigan; she inquired about the peach-yellows disease infecting her orchard. Apparently communication between the two was only sporadic during the 1880s, until in 1894 a more regular correspondence developed, which lasted until the end of Millington’s life. Most of these letters, almost all written from her home in New Russia, are reproduced here in part or in whole. They are housed with the mycological collections of the New York State Museum in Albany.

The 1894–1899 letters were written when Millington’s failing health kept her from the more strenuous botanical explorations that were characteristic of her younger years. Her loss was our gain, since her physical limitations gave her both time and inclination to recall earlier experiences. We have an unusual opportunity in sharing her outings. The interests of our botanist guide went beyond the discovery of new finds, or old finds in new localities, although this, too, she enjoyed. Millington’s observations frequently led her to consider some broader biological question. Her seemingly unquenchable curiosity did not diminish but seemed rather to be enhanced by the passage of time. Thus views of the state of knowledge in 19th-century botany and
ecology emerge from her letters, as does a commentary on the flora of the Adirondack Mountains region.

The letters are presented in chronological order. To facilitate reading, simple punctuation has been added where necessary, obvious misspellings have been corrected, and the text has been paragraphed. Material added for the sake of clarity, such as common names of plants, is enclosed in brackets. The elision of material that seemed irrelevant or trivial, or both, is indicated by ellipses. Geographical place names and plant names, both scientific and common, are retained as Millington wrote them. Appended explanatory botanical names follow the fifth edition (1867) of Asa Gray's Manual of the botany of the Northern United States ..., probably the edition Millington used. Some scientific names have changed in the intervening years; we adhere to the nomenclature of Millington's time.

1894

I can never say quite all I want to about botany. Can you? And then there is so much that I need to learn...

—Millington, 15 August 1894

Most of Millington's letters to Peck were written during the spring, summer, and autumn when she was collecting plants, observing the garden, and visiting her favorite haunts and rambles. An unusual orchid sent to her by a friend prompted her to write to Peck in May 1894 and include the flower in her letter.

Difficulty with identification, abnormality in form, an uncommon species, an unusual growth habit, a plant in a strange place—anything unc customary was cause enough to send off a specimen. Explaining the new and the unusual was a principal raison d'être for communication between the two botanists. They shared experiences and new information, and in the process Peck acquired specimens for the state herbarium. Just such a letter begins the correspondence.

New Russia Essex Co NY
May 23d [1894]

Mr Chas. H. Peck Dear Sir
Enclosed you will find an Orchis flower sent me from Hague, New York. Unfortunately the man who brought it to my friend did not bring more than the stem and flower as you see it. The thickened petals seem to show that it is a sport. The throat, or upper part of the lip, is bearded, and the sac shallow and may have been plaited. It was put in a letter and sent to me fresh, and so became crumpled, but you will know how to manage it.

I regret that a specimen which I prepared for you last fall has been mislaid. I went away early and did not return until March last, and it was not to be found. It was a half dozen flowers in a single spike of very large and fine pink Gentians, G. cinerea. I sowed seed in a low grassy corner of a meadow three years before, and last year I found perhaps a dozen plants of the blue, and this one, larger and finer than the rest, not a rose pink but a soft deep yellowish pink, very handsome indeed.

Have you a specimen of Dipsacus sylvestris [wild teasel]? I cannot understand how it came to be growing here on a rocky hill impossible to cultivate. In fact, far from any cultivated grounds.

Please return answer.

Very truly yours,
Mrs. Lucy A. Millington.

Millington was eager for a reply. A week later she wrote again: "I mailed to your address last week a letter enclosing a single flower (Cypripedium) [lady's slipper]... I fear that it has miscarried. I hope not, as it was curious and beautiful... and very likely it will not be found again." Peck's reply must have already been on its way, since Millington's next letter was written with continued eagerness only a few days later. We can readily piece together the content of Peck's answer. He agreed that the strange orchid was probably a sport. He offered to send copies of his reports. He also apparently commented on the status of research on peach yellows, the disease of peaches that he and Millington had discussed many years before. In return, Milling-
Figure 4. Lucy Bishop Millington (1825–1900).

Mrs Lucy J Millington
Figure 5. Charles Horton Peck (1833–1917).
ton theorized about the disease and its causes, and she suggested a good place to botanize.

[New Russia]
June 4th '94

Mr. Charles H Peck. Dear sir

I received your letter yesterday. You think, as I do, that it may be a sport. Still I wish that it may be well established that it is a sport. I regret very much that it was not found two weeks earlier, as I was then in Hague visiting the friend who sent it to me. We could and would have looked it up. We spent nearly all the time of my visit in riding about the wildest country I ever saw, looking up plants for her wild garden. She had a good many Cypripediums but wanted more, and we walked miles in the woods in which people said they grew to get them. We wore fur coats on account of the cold, but only found a few of the C. acaule [stemless lady’s slipper] and one or two of C. parviflorum [smaller yellow lady’s slipper]. Yesterday came a note from her saying that she had found a mine of Sarracenia [pitcher-plant] and Lady Slipper, yellow and pink, which means I dare-say C. parviflorum and C. spectabilis [showy lady’s slipper], and the location in a sphagnum swamp... I should like the reports. I believe that I do understand much of them, though I have now no books or microscopes. I used to study the microscopic fungi..." 

I do not do much botanizing owing to failing health and inability to get about. There are a few things left unsettled in my mind. I will turn over one search to you... In company with a friend we were gathering flowers along the bank of the Hudson in Warrensburg when she found a plant ten inches or foot high leafy and branched, with downy or soft leaves and cluster of yellow flowers small as the Calceolaria of the greenhouses... It was so exactly like a Calceolaria that we both exclaimed over it. The lip was a small inflated pocket. There were both open flowers and buds on the plant. Unfortunately she lost the plant from her too large bundle coming home. I have often thought it might be an Urticaria [bladderwort], but the leaves were unlike it. It must have been U. cornuta if any. It grew in the sand and gravel of the river beach. That was a good place to botanize. The beach and the stone and gravel islands were ablaze with Asclepias. Mostly A. incarnata [swamp milkweed] and A. tuberosa [butterfly-weed]. Beach Plums grew there plentifully, though low, and a variety of other plants. If you go into that neighborhood, it might pay to try if the river is not now, as it used to be, a good place to botanize. Prof. L. H. Bailey, then my boy friend, showed me a Beach Plum on Lake Michigan that was eight inches in diameter at the base. I have found it on high hills in Clinton Co., much to my surprise.

I am not surprised at the failure of the investigations as to the peach yellows. I think that you were right that it was dyspepsia and consumption both that ailed the trees. But why, we keep asking. The fact that one or more peaches were diseased on widely separate stems or branches showed that the leaves which furnished the elaborated sap to the fruit that showed the disease had ceased to do their chemical work. The sap flowed freely. The fruit grew large, but it was watery, stringy, and tasteless. Neither sugar or the delicate flavor was given to the peach, and as no chemical work was going on in the leaf, its chlorophyll grains ripened and the leaf turned yellow prematurely. In most cases Nature in her effort to supply a loss sent up great masses of sprouts to supply the missing leaves. Could not some way be invented to test the gases which the leaves of a diseased tree throw off? Evidently nature’s law in the taking up and rejecting definite proportions of air were broken...

I enclose a sport on the White Trillium. It has an extra set neither sepals or petals, as you see.

Very truly yours,
Mrs. L. A. Millington

Millington not only encouraged Peck to botanize in the Warrensburg area, but also suggested that he visit the swamp where she first found a new species of Arceuthobium, dwarf mistletoe, parasitic on the black spruce (Figs. 6 and 7). She had noticed deformed and dead trees among the black spruces of the Adirondacks and on 10 August 1871 was successful in her search for the cause. The swamp where she found it and to which she walked was 15 miles from her home in Glens Falls. Millington was unable to identify the plant by using the source materials available to her, so she sent specimens to various people seeking their help. Before she learned the answer, some of the most accomplished botanists of the day had become involved in the problem: Leggett, Torrey, Engelmann, Gray, Parry, and Peck. When all was said and done, they agreed with her: “I believe it to be a Mistletoe,” she had
written to Leggett in her first communication on the subject.

Peck would have a particular interest in the initial discovery site in the Warrensburg swamp, for he had also collected the new mistletoe (at Sandlake in Rensselaer County), in September 1871, a few weeks, however, after

Millington’s discovery in Warren County. He described the new species in his annual report as State Botanist for the year 1871, calling it *Arceuthobium pusillum* Peck and acknowledging Millington as its initial discoverer. Within three weeks of her first discovery Millington found more dwarf mistletoe in two widely separated locations in Essex County, and a year later (1872) she was the first to observe and describe seed dispersal in the parasite. In spite of Peck’s efforts to see that Millington was remembered as the discoverer of this new species, her name has long been forgotten by present-day investigators of *Arceuthobium*, if indeed they ever knew it.*

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Figure 6. Black spruce infected with dwarf mistletoe (*Arceuthobium pusillum*). Stimulated growth at the site of infection produces bushy masses of branches and twigs, called witches' brooms. These malformations attracted Millington's attention and ultimately led to her discovery of their cause. (Photograph by M. E. Ostry, USDA Forest Service, North Central Forest Experiment Station, St. Paul, Minnesota.)

Figure 7. Female shoots of dwarf mistletoe on black spruce. The epithet "dwarf" is appropriate; the shoots when mature are about the same size as the spruce needles. (Photograph by M. E. Ostry, USDA Forest Service, North Central Forest Experiment Station, St. Paul, Minnesota.)

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Mr Charles H Peck
Dear sir

Many thanks for the Reports, and last but not least, the "Country Gentleman." I was very glad to meet you face to face, though only on paper. I feel better
acquainted already. I have not yet read it as I am about to leave home for a few days..."

I hope that you will go to Warrensburgh botanizing and that you will look up the swamp where I found *Arcetobium* first. There is plenty of it there. It occurs here quite often, but nowhere in such abundance as there. It is a fine place for a young botanist, and I used to enjoy going there very much.

I found the *Arcetobium* on my first visit. In fact, I was looking for the cause of the deformity I had noticed in other places on black spruce alone, and so I chanced upon a small tree that I could reach that bore the small parasite. You cannot think what a time I had trying to find out what it was. One person threw away the specimens I sent him and returned answers, "Galls, unquestionably." Dr. Charles C. Parry went there the next summer, and he told me that he liked botanizing there. Some fine native Callas grew there, and I think *Orotium* [golden-club], but am not sure. I miss my old manual for reference, as all my finds were recorded there.** Do be careful. The black holes in which the Callas grew are bottomless tubs of thick black paste. I shiver when I think of them. I know that I found one plant with a tall petiole and a scale-like spathe, but I do not recall the leaves at all. The river banks ought to furnish you something new. The town has furnished the most unique minerals of any in the State, why not plants also. I have some fine white agates found there. Plenty of coarse ones, with Jasper too. Trap dykes are not uncommon. Two crossing a highway are very hard deep red stone.

How often we miss seeing things near at hand for a long time. I found *Viola primulifolia* [primrose-leaved violet] almost at my door this spring, and so I found *Viola rotundifolia* [round-leaved violet] a year or two ago.

I am sorry that I did not send you some *Nuphar* [yellow pond-lily] flowers that I found in Little Otter Creek, Vermont. They were smaller and higher than any I ever saw before. The top of the stigmas was velvety and a bright scarlet. Leaves oval, rather small. I got a good many roots of the Tuberosus Water Lily there so that we have some thirty growing. The flowers are not so fine as some we had before. The petals are rather narrow so they have a starry appearance on the water.

I read very carefully all of yours that I see on edible mushrooms. I have never used any myself except the common puff ball... in its early white state and a very large irregular brown mass colored and cracked like a nicely baked loaf of bread. If I remember right, Withering" called it Giant Truffle. I have had specimens weighing five pounds. Saw once one that weighed more. That is delicious, but not common enough. One that I used to see in chestnut woods had several heads united in a common stalk. It was snow white and smelled delicious, but was too old and mice had gnawed it wherever I found it.

Do you ever find chestnut burrs with five to seven large nuts in a burr? We have two old trees planted long ago that bear nuts seven in a burr rather often..."
little colony on the tree at the edge of the woods I took for granted was one factor at least in the sum. I did not suspect how it would finally prove to be the sole cause, and itself a strange inhabitant of our woods. My studies were confined to the English and American botanies, and I did not know where to look for a clue. Unfortunately, I did not then know our state botanist, or should have been troubling him long before I did, and so got at the secret of the tiny little joker at once.

Now I must tell you of the river road. It goes to the river [Hudson] from the village [Warrensburg] and follows it up to The Glenn where there is a bridge. I think if you can walk that a walk up the road or along the river bank would suit you best. I have walked over it more than once, part by road, but mostly by the river. The way by the river is very, very rough, but I did not use to mind boulders or brush, or a wade now and then, if I could wade. I have waded almost across the river there with a steadying hand to help me a little. I have also gone across on a log raft, which went all to pieces on the river and gave us all an involuntary bath. But that was good fun then. As good as the gossip of the people that we met, one of whom objected to my fern, because "the under side was all over worms eggs."

Well, I hope that you will be well repaid for your trip and find something unique.

I am glad with you of your rare find in an unsuspected place. I wonder much how rare plants come and go. Bladder Campion will appear now and then and not be seen again for years. Strawberry Brite turns up in strange places at long intervals.

.......

.... if you find anything worth telling about won't you tell me. I love to hear what others do, though I am cut off from so much myself.

Very truly yours

Mrs. Lucy A. Millington

Peck’s account of a successful day of collecting led Millington to recollect her own adventures in the field. The mountain-climbing trip she described as “the hardest climb I ever tried” took place in the fall of 1871. Since she no longer had the manual in which her finds were recorded, she had only her memory from which to recall the details she reported with such clarity 23 years later.

Millington must have been a seasoned climber. From the diaries of the Adirondack artist and friend of the Bishops, Alexander Lawrie (1828-1917), we know the details of another challenging climb she made. In September 1869 she and three others of the Bishop family accompanied Lawrie on a three-day climbing and camping trip to the top of Dix’s Peak. Lawrie wrote of their first day out, which had begun at seven in the morning: “We all had as much as we could well carry…. About noon we began climbing in earnest, hard work enough for me at least…. We rested many times. I was always glad when the halt came…. Toward six in the evening [we were] near the top of the crest…. We climbed on the very top pushing and forcing our way through waste [sic] high Balsam trees that grow on the summit only. Until we found a place between two large rocks, set our supplies and tried to build a fire with the stunted balsam trees. It was past twelve o’clock before we got to sleep. The wind was very high and the wood so green that we had but a very poor fire and we all passed a miserable night of it.”

The next day, as they walked along the ridge to the very highest point of the peak—“Now and then one of us would make a misstep and go through leg deep between [the] rocks,” Lawrie wrote—the party was rewarded with wonderful views of the surrounding mountains, “like the waves of a troubled sea,” the valley of the Boquet River below, and Lake Champlain in the distance. From these mountain experiences Lawrie made his memorable paintings of Adirondack scenes, and Millington added to her knowledge of mountain botany. As Lawrie has been called a climbing artist, so Millington can well be called a climbing botanist (Fig. 8).

[New Russia]
July 31st ’94

Dear Mr Peck,

It was very good of you to write two such interesting letters. I enjoyed them very much indeed, and felt pleased that you had had such an interesting find in the wind fall.
I recall a similar situation on the mountain next the Giant. It was the hardest climb I ever tried. The mountain far below the top had been densely clothed with small balsams which were burned thirty or forty years before, and the charred trees, made more lasting by their coating of charcoal, had fallen in all sorts of snarls through which we had to climb. We could not often touch the ground. We walked on the trunks and branches. We fought through them at last and came to the top and a long stretch of almost bare rock, only a few goldenrods and Gna
dphiliums, with small birches and low alders for trees. The summit was a dense forest of small balsams growing in a deep bed of Sphagnum. On the northwestern side we found the pond. It was about half an acre in space, not very deep where we could reach it, but it must have been deeper on the other side where there was a rocky shore. There were Nuphars in it and a little Chara, I could not tell which, but I did see the seed of the Nuphar like a small flask floating in the water showing some exquisite gauzy leaves, so that I could determine that by its cotyle-
dons. There were some little alpine plants in the moss and a delicate network of Chiloscythes in places exposed to the sun. No grass or other moss than the Sphagnum that I saw, but going down among the slender spruces we peeled off great sheets of the most beautiful Hymnus as we slid down the steep places. That is what we hear so much about in the papers as Spruce Duff. I found on a small spruce not more than three feet high, when we were going up the north side under the slender spruces (black spruce) a colony of Arecathobium, the third location since I found the first three weeks before in the Warrensburg swamp, widely separated all of them. We lost some of them. We almost lost our clothing. I only saved what plants I had put into the bosom of my blouse, my little book for specimens, and some sprays of spruce with the parasite. My skirt was nearly gone, pocket and all its contents. The rest were as bad, some worse.

Since I got your first letter I have been to Button Bay [Vermont] opposite Westport [New York], where a friend has a summer cottage on the Island, a place dear to geologists, as there they found the connecting link between two widely separated geological periods, quite recently, too. One of the authorities at the New York Museum of Natural History showed me the case in its order, marked with the name. We used to camp on the point near the Island, and there I found Pterospora andromedea [pine drops] for the first time. Magnificent specimens, too. Things which grew on the shore of Lake Michigan grew there too, but I have not been there in some years. On the Island Rosa lucida [dwarf wild-rose] was in bloom in a few places there, and two forms of Stachys hyssopifolia [hedge-nettle], and a small rose probably also lucida.

You seem to regret not finding flowers new to you. That is the penalty of being so well acquainted with them all. I have found two which were new to me, Chionanthus virginica [fringe-tree] and Staphylea trifolia [American bladder-nut], this summer. It is a great pleasure to me to find a plant new to me.

Thanks for your words as to the Abies. A group of them here have puzzled me sorely. An old lumberman whom I consulted told me that there were three kinds of spruce, "Red, yellow and white. The yellow was almost as valuable as pine. It had soft white wood. The black and white are hard and resinous." I mean to look them over again. Balsam varies too. I have some specimens with appressed needles without the white line underneath. Cones small and with entire edges as I found Abies nigr a yesterday. Strong, acrid, disagreeable smell...
I have made you a long letter and hope that I have not tried your patience too much.

Very truly yours,
Mrs Lucy A. Millington

At the height of the summer Millington had much to write about. The orchards were coming into fruit: Peck would be interested in the quality of the crop, or in any news about orchard diseases. Summer flowers were in full sway. There were more specimens to be identified. Almost every letter had its inclusions. Every piece of information added to Peck’s knowledge about the flora of the state. In return, Peck responded to her never-ending curiosity, and Millington was learning. “There is so much that I need to learn,” she wrote.

[New Russia] August 15th ’94

Dear Mr Peck

. . . We have an orchard of Russian and Siberian apples, pears, cherries and plums. The cherries are a failure with two exceptions. I had a fine one only the day before yesterday. They prolong the season at least six weeks. The pears just begin to bear, only two varieties, one early, sweet like the Sickle, the other later, not yet ripe. Two or three of the plums bear, but the earliest rot and drops its fruit, but is very nice. Too hot for it. The other “Moldovsky” is large, hardy, bears well, and is a fairly good plum. Apples not such a success, though two bear well. One enormous in size never falls off the tree. Pretty good, too. The other is beautiful to look at, but bitter. The Duchess is fine here. We have a great many of them. . . .

I wanted to ask you to tell me if the little Convulvulus [common bindweed] enclosed is not an introduced plant. I have found Calystegia sepium [bracted bindweed] here, and C. spiumae[ ] is very common about Glens Falls. . . . The flower is very small and opens broadly, is striped with bright pink. . . . You see that the leaves are linear, not pointed, and the lower lobes or points are turned outward. I am afraid that it is just C. arenstis. It came to me from Essex [in Essex County] near the lake, grew in mats along the woodside.

. . . . .

I used to botanize over the ground where the great Fair was held. Some things were in their glory there.

They must have been ground out of existence. I found in the canal that fed the lakes in the Park Dr. Allen’s beautiful Chara elegans. I had found it here too. Have you ever had any experience with Chara fetida in your Adirondack travels by boat, or canoe? I must stop now, but . . . I can never say quite all I want to about botany. Can you? And then there is so much that I need to learn. . . .

Very truly yours,
Mrs L. A. Millington

For Millington the study of botany far exceeded the pursuit of finding new species to check off on a list. Although an ardent collector of the new and unusual, she was not afflicted with the new-species-hunting fever that had overwhelmed English Victorian natural-history devotees in the mid-1800s. She advised her good friend Elizabeth Watrous, a beginning student of botany, “to stick to one family [of plants] until she could feel sure of knowing it pretty well.” This is the advice of a serious student. To be a botanist was to know and understand plant structure as well as to recognize plants by genus and species.

Millington and Watrous shared an interest in the orchids, a subject frequently mentioned to Peck. The interest was widespread. “A certain fascination attends the very name of orchid,” wrote Mrs. Dana in her book How to know the wild flowers, popular in the 1890s. She continued: “Botanist and unscientific flower-lover alike pause with unwonted interest when the discovery of one is announced.” The collecting of orchid specimens to sell, mentioned by Millington in the following letter, was a serious problem. Dana mentioned it also, with reference to Cypripedium spectabile, the showy lady’s slipper (p. 232): “This flower is one of a species whose life is threatened owing to the oft-lamented ruthlessness of the ‘flower-picker.’ Near Lenox, Mass., there is one locality where the showy lady’s slipper can be found. Fortunately, one would suppose, this spot is known only to a few; but as one of the few who possess the
and sells them by the dozen [author's italics] in Lenox and Pittsfield, the time is not distant when the flower will no longer be found in the shadowy silences of her native haunts, but only, robbed of half her charm, languishing in stiff rows along the garden-path.”

Dana goes on to sound an even stern warning for the future (p. 238): “...The prevalent lack of sense of self-restraint in the picking and uprooting of flowers and ferns is resulting in the extermination of many valuable species. This is especially true in the case of the orchids. ...This picking and uprooting tendency does not begin to threaten so seriously the future of our really common flowers as it does that of our rarer and more beautiful species. Many of these will disappear from the country, it is to be feared, if some counter-influence is not exerted. ...”

Both Millington and Dana would be glad to know that the orchids are now protected to some extent by law in many states. In New York all native orchids are protected to the extent of the Protected Native Plants Regulation (effective September 1, 1974), which states: “...no one may knowingly pick, pluck, sever, remove or carry away, without the consent of the owner thereof, any protected plant.” The fascination with orchids that Dana described unfortunately still persists. Mitchell (Peck’s present-day counterpart as New York State Botanist) and Sheviak write: “Orchids are popular plants. They possess mystic and exotic qualities and generate considerable excitement when they are found in the wild. As a result, they are avidly sought by orchidists and certain gardeners. ...None of our native species can be reliably grown from seed. ...As a result, horticultural demand is supplied from the wild. ...Some species are presently more threatened by collection than by any other single factor.”58 Six orchids are included in their list of species recommended for high-priority protection in New York “on the basis of overall rarity and/or vulnerability to commercial exploitation” (p. 70).

[New Russia]
Oct 18th ‘94

Dear Mr Peck

...[Elizabeth Watrous] wrote and asked me last summer if she had better tell two ladies who were botanists where she found her curious specimens of Clyparipedium spectabile. I wrote to her not to do it, and am truly thankful that she asked me, as they were collecting specimens to sell and they would have taken them all, I fear. She has some pressed, and they were wild to know where she got them.

We went to a mountain lake very much higher up than our valley, and we were left on an island for an hour or more. We found three of the best club mosses, and a number of shrubs growing along the water’s edge. There is a rose that blooms several times in the summer growing there. I believe the [Rosa] lucida does along the water. We also got leaves of Brasenia [water-shield]. The water was very warm and in the condition country people call “Blooming.” Have you any experience of it? It means to me the profuse germination of minute plants like the Volvox globatus and others.59 Some waters differ from others in color at that time. Some take on a milky appearance; others are gray or brown, sometimes quite brown. I was at Lake Champlain in July when the water as far as I could see into it was full of small round globules, and they had begun to die and to float like a thin scum on the water. Still the water was full of them spinning about. I thought of my burned microscope with a pang of regret.

Up at the mountain lake I found Epigaea regens [trailing arbutus] in January through the snow, melted and frozen into ice. It is the nearest station that I know of it in this country. ... Now let me thank you for your kindness this summer. ...I wish that you may have a pleasant winter and a summer after it that shall bring you untold botanical treasures and all the joy that a botanist feels in pursuit of his beloved science.

Very truly yours
Mrs. L A Millington

1895

The uncertainty of life does not hinder me. It only makes me the more anxious to do, and
see, and learn more of the wonderful things there are to be found out here.
—Millington, 13 October 1895

Failing health limited Millington’s botanical activities during 1895. She wrote only four letters to Peck, all from New Russia: “... I have had nothing to say to you of my own experience in our mutually favorite natural science...” (July 14). A few excursions into the field, however, produced some things worthy of mention. Two subjects dominated all four letters: orchids and fungi. She knew he would be interested in both.

The weather during the spring and summer was “unpropitious” for the field botanist: “... the frosts, the heat and the... very dry weather spoiled all my pleasures. I was at Hague and it seemed even dryer than here. There were long slopes covered with beautiful pink Penstemons [beard-tongue] that seemed to shrivel as we looked at them until they hung dead upon their stems... But the orchids were wonderful. One could scarcely turn about without seeing the tall yellow Cypripedium, or the [Cypripedium] acaule. Behind every bush, and on every hillock, they bloomed so serene and beautiful that I was enchanted.” She could even report seeing a single specimen of the ram’s head lady’s slipper, Cypripedium arietinum. And, as always, she lamented not knowing more: “I wish I could take your trained eyes with me. I regret constantly that I know so little. What I learn here seems to me the only thing I can take with me when I leave this world, and I feel very poor indeed...” (July 14).

On 20 August Millington replied immediately to a letter received from Peck on that very day. He shared his professional problems, as well as his successes, with her. Apparently he had voiced some dissatisfaction with the conditions under which he worked. Millington was sympathetic: “...I am very sorry that the funds have given out, so that you cannot travel. There should be more liberality shown toward your department, and doubtless would be if it only had a political tendency.” But there was something else that she was eager to say to him: “... I have wished you had been with me several times in the last few days... My brother told me he had seen a very large white object on a hill near the road more than a mile from home. He thought that it might be a giant puff ball, which he had once seen. So we took a horse and went for it. It was a Lycopodons giganteum [giant puff ball] as white and smooth as silk, and measured forty five inches in circumference, and weighed ten and one half pounds. Did you ever hear of a larger one?” And she concluded her letter, “I wish most earnestly that you could have seen my giant puff ball.”

A brief letter on 13 October attests to the wide range of interests the two botanists shared. Millington offered Peck what she considered a very desirable ornamental perennial for his garden: “... it is the aster common to Ohio, Illinois, and Michigan... nearly like the New England aster. Is a month later and much larger. Ours are in their prime today. Nearly six feet tall, very much branched and a mass of deep purple flowers, larger, fuller, and more fragrant than the New England.” She had sent it to New York from Michigan 15 years earlier. She went on to discuss the differences between the Russian fruits which the Bishops grew in their orchard and the American varieties, and she theorized about the reversion of hybrids to wild types—“the strongest argument for Darwin’s theory of descent from far-away life.” And she expressed some personal thoughts, confident of Peck’s understanding, as she revealed her hopes for some future botanizing: “I have done very little this summer owing to many cares, but I feel myself richer by a few observations that have pleased me. Also I have found nearby a little swampy bit that I mean, if I live to come back here, to rummage thoroughly next year. The uncertainty of life does not hinder me.
It only makes me the more anxious to do, and see, and learn more of the wonderful things there are to be found out here. Thank you for many things you have taught me and many ways in which you have made my life brighter and happier."

"I am pleased to know of the presence here of so rare a plant," Millington wrote to Peck on 10 November, her last letter before leaving New Russia to spend the winter in Glens Falls, as was her custom. Although we have no way of knowing what this rare plant was, we can safely guess that Millington's specimen was carefully added to Peck's state collections. We can speculate that this incident helped brighten Millington's otherwise lackluster botanical season. We do not need to speculate, however, about her joy in the season's final outing, which she described to Peck and which clearly needed no particular botanical event to make it a memorable occasion: "I went last week to the Vermont shore [of Lake Champlain]. My last visit for the season. You may have been there. If you have you know how infinitely more beautiful our mountains are seen from that point. From Burlington they are specially fine. I enjoyed the sail and the view of the misty hills very much. I could see some that I had climbed in years past. I see the whole thing in memory, but I shall never climb another hill. The sunsets were glorious. Such a glory as the sky was, and such a delicate pale rosy, misty cloud-like . . . line of mountains, like something too ethereal to last more than a moment. I have no words to describe them."

1896

. . . I expect to be here next season, but I count nothing surely mine until it comes, except the very little that I have learned of the world I live in . . .

—Millington, 30 November 1896

"I cannot walk far," Millington wrote. This was not the freedom she once knew, but she found, or made, opportunities to botanize in whatever way she could. People continued to send or bring specimens to her for identification; roadside plants could be seen from a carriage; her garden yielded its share of interest; and the woods and fields surrounding her home were always a potential source of new species of fungi, which she particularly looked for with Peck in mind. No detail was too small to note and to take into account: new plants were yet to be discovered.

The bond between the two collectors was strong. They shared the pleasures of new finds. In almost every letter Millington had a word of encouragement for Peck in his collecting efforts. "I hope that this scorching weather has brought a harvest of capital finds wherever you are working as collector" (June 27). She wanted to know about the "new treasures" he was able to add to his "store of beautiful things" (October 19), and she rejoiced in his successes: "I am very glad that you had such a good time this summer. Glad that you secured so many new things" (November 30). Peck, by his enthusiasm for the task, his diligence, and skill, developed the state herbarium from a collection of 1,800 specimens to one of many thousands. He described over 2,500 new species of fungi during his 48 years' service as State Botanist. The substantial contributions by amateurs like Millington to such accomplishments have frequently gone unrecognized. As Engelmann once pointed out, devoted amateurs sometimes hit on things missed by the professional botanist: "They do not take things for granted—for old and stale—everything is new and interesting to them. . . ."
up a small tree by the low branches. I do not think that it can be anything but Lonicera hirsuta [hairy honeysuckle], but should be glad to have my opinion confirmed. Its distinctive mark is the gibbous mark at the base of the tube. The Penstemons are abundant there too. I do not feel sure of them either... I have had the pleasure of finding Dodonaea [American cowplum] growing and flowering where I sowed seed several years ago.

I see only a few of your specialties the fungi. It has not been so good a season for them as usual.... I am in hopes to do more [as] soon as my sister is here, and she is an enthusiastic explorer but no botanist. I mean to utilize her carriage for excursions and her sharp eyes for getting new things.

Very truly yours
Mrs. L A Millington

In July Millington turned to Peck with a different problem: a widespread infestation of some kind was destroying the pines around New Russia, doubtless the white pine, although she did not specify. The white-pine weevil and its depredations were well recognized and understood in Millington’s time. Whether Peck found another source of trouble in the specimens Millington sent we have no way of knowing. We do know, however, that the white pine is subject to a great array of diseases, particularly in the pure stands that result from natural seeding in abandoned farmland and undisturbed fields. Echoes of Millington’s comments about the flourishing woods in the Adirondacks—“we are being crowded out by the woods”—can be heard among present-day residents in the same area. The white pine still rushes in, and insect and fungus diseases still take their toll.

[New Russia]
July 16th ’96

Dear Mr Peck
I shall send with this a newspaper with a few bits of pine tree shoots from the top growth of a very thrifty plot of young seedling pines. The yearly growth of some of them has been enormous. It is only 7 years since the ground was mowed for hay any year. I think one tree’s growth in the straight central shoot was three feet, two years ago. The rest nearly as good. This year almost every tree has its top spoiled as you see, and it is not the destructive German beetle, evidently, but some other reason which I cannot see at present. I think these shoots will not count in the tree’s growth, but will die this winter. I could not see it on the tallest trees, except on the lower branches. We have a few very large old pines near us, but I could not see their tops to tell if they too had failed.

You must have noticed in the Adirondacks[sic], the ease with which Nature grows a forest wherever she is allowed to do it. In fact, we are being crowded out by the woods, and oh! what a lush and happy time they seem to have spreading their leafy crowns in the summer sun. Last winter was very hard for everything. The high winds blew down many of our trees, and in the mountains we can see large tracts that are almost stripped of trees, but in spite of dry weather and cold and heat unusual we have such a rush of trees coming in. Pines and willows, poplars and birches all over fields and meadows. Seedlings of forest trees everywhere.

I have not been out much, but I am pleased to see the delight some acquaintances have in finding things they have never seen elsewhere so common here, but not found in other places at all. It is such a pleasure to them, and I can share it.

I hope to do a little more hereafter. Summer used not to be my only study time, but it is now, and only a little of it left me. Still it [is] good to think the rest of the world is not idle too.

Very truly yours
Mrs L A Millington

Millington viewed with tolerant amusement, and some despair, the would-be botanist with a plant list in one hand and a copy of Mrs. Dana’s wild-flowers picture-book guide in the other. Such a person might be a collector-hobbyist, but not a botanist. Mrs. Dana’s guide to the wild flowers, arranged according to flower color and without definitive keys to the species, was first published in 1893 and enjoyed great popularity. Using the last revision (1900), Dover Publications issued Mrs. Dana’s guide in paperback in 1963. We can safely say that even this long life would not have persuaded Millington that Dana’s book was one for the serious student of botany,
let alone a substitute for Gray's *Manual*. The incident she recounts to Peck reveals her philosophy, as well as the pitfalls of taking the easy route to plant identification.

[New Russia]  
Oct 19th '96

Dear Mr Peck

I have waited a long time before writing to you, to receive a curious fungus which was promised to me for you. I find it extremely difficult to describe. When I had my books I had pictures of the same kind, but a little different. It was apparently a perfectly round puff ball mushroom which later opened out a set of rays. I have found several such here years ago. But this after expanding its rays, and showing a perfectly round centre, lifted a crown... you may have seen it. I hope that you have and can tell us all about it....

My botanizing has been done by proxy this year. I am good for nothing for walking, never shall be well again. I have thought a great deal of your summer trip with the surveying party. It must have been fine and afforded you untold pleasure. I should be glad to hear of your finds. It is a treat to hear what others are doing, and what new treasures have been added to your store of beautiful things.

I have been amused at the efforts of some beginners to make a long list of plants. It seems that nearly all begin with Mrs. Dana. One dear little lady was owner of a manual, but depended on Mrs. Dana. I insisted that she should make the acquaintance of the simplest familiar find of all and go on so until they were quite familiar to her. But she kept trying with the pictures. One day she stopped me on the street to say, "I have an orchid this time, sure." Oh, what a pity. It proved to be our pretty Bugleweed *Lycopodium Virginica*. When she did get an orchid I insisted on her studying it faithfully....

Very truly yours
MRS L A Millington

A comment in an early issue (1873) of the *Bulletin of the Torrey Botanical Club* would lead one to conclude that work in the "department" of systematic botany was about completed, that not much was left to be done in describing and classifying plants: "Many causes have led botanists in America to give their attention more particularly to the systematic part of the science; but this field has been so well worked, and is so full of workers, that there is little room for any new comer to add much to our knowledge in this department...."

The writer was encouraging researchers to deal with less investigated fields of botanical research, a justifiable suggestion. Doubtless Millington and Peck would have considered this view of systematic botany over-optimistic, however, as they wrestled with the troublesome problem of identifying the various spruces (then called *Abies*). They had first discussed the subject more than two years before (July 31, 1894). Although Peck had apparently put some thought and study on the matter in the meantime, still neither he nor Millington could be sure of the identifications. Field botany still held its challenges.

[New Russia]  
Nov 30th '96

Dear Mr Peck

I think that you must have been moved by a very pleasant impulse when you wrote to me about the *Abies* which you had been studying this summer. You could not have given me greater pleasure. I have been studying the same thing I think, and could arrive at no conclusion at all. I have rather avoided them for two years. This summer the people who brought their plants to me got some of the *Abies* with blisters and some of each kind and asked me which was the *Abies nigra* and which the "balsam." I would say, "This is the true balsam with the smooth bark and large blisters." "Oh, but there are blisters on both," which was true, and I had to say I did not know, for there was nothing in the books about the blisters on the *A. nigra*. To tell the truth, the small-leaved kind is quite different from the common *A. nigra*, which as you know has coarser leaves and more of them. Then there is a decided difference in the bark and the leaves of the two."

...I have a promise of the Geaster [earth-star], but must wait until it comes. I shall not be able to leave here soon, I fear, but I must go as soon as possible, so I can send it to you. If I am alive, I expect to be here next season, but I count nothing surely mine until it comes, except the very little that I have learned of the world I live in and that I can take with me.

By the by, my [western New England] aster does sometimes ripen seed. I have found a single plant in bloom that was never set where it grew. I looked
my plants over and found three or four naked receptacles. Evidently seed had ripened there and blown away. The cold weather has prevented the seed ripening. I daresay I think that it ought to ripen seed at Menands so you can distribute it.

I hope that you will be able to place the Abies. It will be a great pleasure to me for it has puzzled me a long time.

Very truly yours
Mrs. Lucy A Millington

Peck replied promptly and apparently clarified—at least somewhat—the identifications of the spruces that Millington found so troublesome. A week later (9 December) she had an additional comment on the subject: “Thank you for the pleasant and instructive letter. I fear that I shall not see the white spruce soon. My brother said, ’I know the tree well, and would pay something to have as fine a tree on my place.’ Our white spruces died one after the other. Also the black, but the balsam are doing well. There are many evergreens on the hill near us. They thrive remarkably well, especially the pines. I studied the white spruces among some beautiful trees at the foot of our mountains years ago. I can never forget how fine they were. What deliciously colored foliage. They must be large trees now.”

1897

What I might have done in other circumstances I do not know. Only that what I have done has made me happier than I could have been without it.

—Millington, 12 July 1897

Millington, confined by winter and illness, turned her thoughts to various subjects, among them a new botanical publication and a new field of study. She recalled the library she had lost.

[Glens Falls]
Jan 25th [1897]

Dear Mr Peck

. . . .

I have just received the first volume of Britton and Brown’s Botany. When I opened it I felt as though it was upside down for a moment. It can never be a popular Botany. It is too cumbersome and heavy. It weighs four lbs and nearly one half each volume, too much for my hands, and too heavy to carry about for anyone. I do not care for the arrangement and the plates, but others may. I had at one time Withering’s British Plants. I think that I have read the Analysis several times over regularly because I could learn so much from it. That and my microscopic Botanies were lost in the fire as well [as] my dear old Manual with all my finds recorded in it. My Wood, which my friend L H Bailey used as his first Botany, I gave to a friend in Florida. I tempted him with that, and he went on remarkably.”

At present I am going over with a friend the early vegetation of the earth in all its periods. Strange and wonderful history it is, too.

. . . I hope that your coming season will be as you may wish it. Full of wonderful finds, and a perfect success. In the mean time with many thanks for your kindness, believe me,

Yours truly
Mrs L A Millington

With the coming of spring Millington felt her confinement even more keenly. Peck’s annual reports would help. Still in Glens Falls, on 2 April she wrote: “You were kind enough to promise me the Reports for 1895 and 1896 when they were published. Forgive me for reminding you of them, but I should very much enjoy seeing them. The less I can do myself, the more I care to know what others are doing and satisfy my own longing with the knowing that good work is done by those I like to think of as doing their work well. I cannot go back yet [to New Russia] but they tell me I shall be able to get away as soon as the weather is settled . . . .”

Peck responded in full measure to Millington’s request. He sent one of his reports, always well illustrated with his own meticulously prepared colored drawings. He also included some examples of Liberty Hyde Bailey’s work, in which he knew she would be interested. The “list of Carex” (sedge) that Millington comments on may have been that prepared by Dr. E. C. Howe, a frequent contributor to the state herbarium between 1885
and 1895, or perhaps one of Bailey’s studies of this genus. Bailey was a recognized authority on this group of plants. In his tribute to Millington, written long after their friendship in Michigan and many years after her death, he recounted the special connection between himself, Millington, and the genus Carex: “One of the brilliant recollections was her remark about a broad-leaved grassy plant with a head of hanging stamens I had picked in Dyckman’s Woods. She said it was a Carex, a very difficult group I should not then undertake to study. I suppose it was Carex albursina. That old challenge has followed me through life.” In Millington’s day the genus Carex was one of 15 genera in the sedge family and comprised 151 species. Only long, hard study would make it possible for Millington to say that their identification had “become quite easy” for her. We wish we knew how Bailey might have replied to Millington’s criticism of what she considered his “too diffused” publication practice, had he known of it!

[Glens Falls]
May 27th [1897]

Dear Mr Peck

I am still in Glens Falls and see no hope of being able to go back north for a month at least. Still I shall go just as soon as I possibly can. I hope I may improve faster as soon as I can go out more.

I had some things sent to me here. Among the rest your report. It is a beautiful book, and I thank you very much for having remembered me. I was glad to have the list of Carex. I am glad that efforts have been made to arrange them in a permanent way. I had made out a long list of them before I lost my books. It had become quite easy for me, and I enjoyed those and grasses very much.

I am glad to see my friend L. H. Bailey’s work. It is not my affair, but I wish that he had not published so many books. He has diffused too much. Still I know the influence that is moving him, and hope that time will improve his sense in that respect.

I am delighted with your drawings. They are very perfect. I remember the poor effort I made to give you a hint of the Geaster [by a sketch]. . . . At all events you and your friends can be on the lookout for the rare Geaster. I sincerely hope that you will be the fortunate finder.

. . . . .

[My doctor] is a lover of natural sciences. . . . I mean to give him your report. He will care for it. . . . When I am done with it I should like him to have it. I wish that the ignorant Legislative noodles had had a large number of the part relating to Edible and Poisonous Fungi printed for the benefit of the people . . . Gibson,” our dear dead artist, did much to make them known, and you have made the largest contribution yet. I only wish that it had been more widely distributed.

Very truly yours
Mrs L A Millington

In her next letter Millington described some unusual specimens she had acquired during the summer, and she shared with Peck a moment of personal assessment—she doubtless had many, but they are rarely revealed—when she said about her interest in science: “What I might have done in other circumstances I do not know . . . .” Did she wish that there had been more free time to study, more opportunity to investigate and observe, more undisturbed time for scientific inquiry? “There is so much that I need to learn . . . .” she had written early in their correspondence.

The study of botany had long been considered a suitable and acceptable pursuit for women. Mrs. Almira Lincoln was not the first to declare it so when she wrote, 60 years earlier, in the introduction to her botany book: “The study of Botany seems peculiarly adapted to females; the objects of its investigation are beautiful and delicate; its pursuits, leading to exercise in the open air, are conducive to health and cheerfulness.” Millington would have readily agreed, but these aspects of the study of botany were not those that enticed her most. The expeditions into the field were an essential part of her life, but her real passion lay in the reading, the learning, the experimentation, the inquiry—with books, microscope, seed trials, plant hybridizing, dissec-
tions of minute floral parts, and continual observation. Field explorations invariably led to further study. Perhaps the "other circumstances" Millington had in mind as she reflected on the years past were not only those of her personal life, but also the changing societal circumstances within her lifetime that were bringing professional opportunities to women scientists too late for her to enjoy. Or was she contemplating other circumstances that might be offered by a research-oriented scientific world she confidently envisaged in the future? Family recollections include Millington's words to her teen-aged grandson: "How I envy you—that in your lifetime you will see so many wondrous advances in the field of science. How I wish I could come back in 50 years to witness what mankind will have learned in that span of time!"

[New Russia]
July 12th [1897]

Dear Mr Peck,

I have some things brought me occasionally, and I have put a few in a box which I [shall] mail tomorrow. The poppy heads are very curious. The petals are abortive, but the stamens are developed in ovaries and the inner face of each one is covered with seeds. I send them to you now as I am sending the other plants, but I shall get specimens later to see if it does develope [sic] true seeds. It is not a peloril arrangement, but is a monstrousity. I only know of one peloria which is a peloria on [a] feather. That on Ramshead [Lady's Slipper] I have never seen. The larger fungus is very like one I once sent you which you called "the colic mushroom." I have received several of the different unwholesome Amanitas and a great many of edible sorts of mushrooms that are common about here.

I hope that you will not think I am trying your patience because I also send a couple that I cannot surely say are either fungi or lichens. But I was asked only yesterday if I had ever seen a fungus called Indian Pipe. Of course I had. I am really afraid that I must have asked you a great many such foolish questions. But you have the patience of one who loves his work, as I do in my poor way. What I might have done in other circumstances I do not know. Only that what I have done has made me happier than I could have been without it.

Very truly yours,
Mrs L A Millington

Two letters within a week in September were full of news about the fungi. A rainy fall brought many of them. Since Peck's collecting expeditions around the state did not take him to the New Russia area, Millington's contributions must have been particularly welcome. If no specimens were at hand, her detailed descriptions, which he knew would be accurate, allowed him to make tentative identifications. He could pursue the matter further if he suspected something unusual, as was the case with the geasters during this 1897 collecting season.

[New Russia]
Sept 24th 1897

Dear Mr Peck,

I have not troubled you with a letter in a long time. I am so anxious to hear your experience in your journey to the mountains that I venture to write. I wish especially to know what you found among the spruce trees and your conclusion.

I have done very little myself, but the rainy season gave us a great many fungi in places accessible to me. I should have sent you one long ago, but I supposed that you were away... It looked very much like one I sent you a long time ago. I cannot recall the name, and moreover it smelled very like it. But it differed. This was about five inches tall. Tubular and slender with a pointed top which held traces of a dark green pigment or powdery coating over the brillant vermilion point which seemed never to have had an opening. The stem was rose-colored. They grew in long rows from rotten wood inside a stout sack, which was ruptured as it grew...

Then I was pleased to find a beautiful little Geaster near the house. New to me, and it was so pretty growing in wreaths and festoons looking like dull-colored daisies. I wished that you could have seen them. The ground for quite a space was a web of the mycelium, and they grew for a couple of weeks more and more every day.

A friend who has a summer home near has found a garden of the Giant Lycoperdon on his grounds...
The small orange mushrooms are the only ones left now.

I hope that you did have a delightful time and got a great store of new plants for your herbarium. I have been nowhere so far, but may enjoy the doings of my friends.

Yours truly
Mrs. L. A. M.

[New Russia]
Thursday Sept 29th [1897]

Dear Mr Peck

...I am pleased to have made so singular a discovery [the Geaster], though I do not quite claim it, as my sister brought me the first specimens. Everybody who finds a peculiar plant here brings it to me. I wished to know which of our Geasters it was. So you got a rarity....

Last Monday I went out to plant a Giant Lycopervenon that a friend brought me for that purpose. Coming along the ramble I looked at [the] side of the path nearest me, and to my surprise saw larger and stouter specimens of the same Geaster, evidently just grown. ...

A ramble is just a footpath through the wood and opens up to the closest inspection places all hidden before. We have found that one about a mile long a treasure to us all. We are in the heart of the woods.

Now I am very much interested in the spruce question and am glad to hear your opinion. Did I ever tell you that an old lumberman told me not long [ago] that the Canada Balsam had delicious gum (chewing gum) on its bark? His wife said that it was much finer than spruce. Of course he meant the white spruce, not balsam. ...

I had a fine Aspidium acrostichoides [Christmas fern] given me the other day. Beautiful variation, quite unusual. Somebody will see it, if I do not. It is twice, even thrice, pinnae with rounded pinnules.

Very truly yours,
Mrs L A Millington

Some packets of seeds and more specimens accompanied the two October letters that brought the season's correspondence to a close. Millington frequently expressed to Peck her pleasure in their letter-writing. She wrote to him not only as a botanist but also as a friend to whom she could speak of her great love for the out-of-doors, of her continually declining health—and of life's end. Neverthe-

less, she hoped during the following season to be able to add some observations to his ongoing study of the spruces. "I shall try another year, if I can, to get into the young colonies of spruces..." she wrote.

[New Russia]
Oct 3rd [1897]

Dear Mr Peck

I send you a little packet each of Adlumia cirsoida and Fringed Gentian. The shining seeds are Adlumias. As these are fresh from the woods where they came up by a pine blown over by the wind, opening up a tiny gap for the sunshine, I think that you will find them vigorous growers. So far as we know no Adlumias have grown there in sixty years. Nobody knows how much longer, but we find them in deep wood by fallen trees everywhere. We get the first year's plants if we can, or in lieu of them, plant the seed. In a few years they do not come up at all or are small and feeble so that they are taken for Fumitory in the spring. Fumitory is often planted for Adlumia. I have seen it with 30 or 40 feet of trellis with most disappointing results."

The Gentian seeds you can sow in the grass where you can let it alone and it will take care of itself, but it comes up late usually. I have a little bunch of pale flowers in the house today, which evidently came up during the very warm weather several weeks ago.

The weather is so fine all the time that I want to walk more and more. The trees are even more beautiful with their delicate tracery of stems and branches than with all the leaves. Against a clear winter sky how fine they are. And I love any winter sunset against which are a group of fine elms. And then when the twigs begin to glow in the spring, how lovely they all are. Some of our foreign willows are a deep vermillion, some golden yellow, or bright green and brown. They are very beautiful. ...

I wish most heartily that I could hear your lecture on the spruces. I shall try another year, if I can, to get into the young colonies of spruces including all the conifers too. Vigorous young things that seem to rejoice in their strength.

How our pines have grown this year, and how fine they are with their topmost limbs drooping beautifully with [a] wealth of cones. That reminds me of a friend who had fine young larches set out in her grounds. Looking for them this fall she found that they had disappeared. She is very fond of larches and was of course horrified. She inquired all around, and her husband told her that as they had all turned yellow and were dying, he had had them pulled up and thrown
away. “Adirondack” Murray, whom you may remember hearing of, wrote a Christmas story in which the “feathery foliage of the larch” figured largely among the decorations.28

When spring comes again I hope that I shall be here to see it and not as last spring not able to see more than the tree tops with eyes that saw nothing clearly.

Yours very truly
Mrs L A Millington

New Russia, Oct 25th [1897]

My dear Mr Peck

... Many thanks for your kind wishes, but I am not seeking a warm climate. I must have a bracing out-of-door atmosphere and find it here. I have already had four years more than the drs promised me and am grateful. I go from here among friends mainly because I need to be in more cheerful company and surroundings. Mean every year to return earlier, but generally go under my Drs care as soon as I get away and stay later than I mean to, because I must. I cannot count on any thing, but if I cease to write to you, or you do not hear from me, you may know that I have joined the great majority beyond this earth. In the mean time believe me truly grateful for your patience and many kindnesses in our many years of letter writing.

Very truly yours
Mrs Lucy A Millington

1898

That mistake of the man who pulled up the larch trees would have been laughable if it had not been so serious. Ignorance is not always bliss, nor is it always safe to reason from false premises.

—Peck, 11 March 1898

I see occasionally letters in the Tribune deploring the destruction of the spruce trees all through the Adirondacs. How very little a city man knows of the real condition of things.

—Millington, 27 September 1898

The addition to this chronicle of a few of Peck’s letters—unfortunately only four are known from the 1894-1899 period—enhances our understanding of 19th-century natural-history study. By writing letters, information was shared; questions raised between correspondents generated new avenues of inquiry. By exchanging specimens, herbaria were enlarged; ranges and distributions of species, and innumerable other problems, could be studied. Naturalists of similar interests found each other by various means. The Torrey Botanical Club, for example, published a “Botanical Directory” which listed the names, addresses, and fields of interest of active botanists.29 Journals, such as the American Naturalist and the Bulletin of the Torrey Botanical Club, encouraged the publication of simple observations, remarks, and brief notes. The zeal of the participants fueled the process, and the data accumulated.

The Millington–Peck relationship is a classic example of this method of scientific inquiry at work. The system was successful and productive: the professional naturalist and the amateur could function well together within it, as could the field observer and the desk scientist. As the body of knowledge increased with the advancing decades, however, the naturalist, whose purview included all things animal, vegetable, and mineral, gave way to the specialist—the biologist, botanist, comparative anatomist, zoologist, and geologist. Thus Millington and Peck belonged to an era of natural-history study that, by the end of the century, was rapidly coming to a close and to whose end they, and countless other workers like them, had contributed much.

Capitol, Albany, N.Y.
Mar. 11th 1898

Dear Mrs. Millington

Today, in looking over and arranging some letters for filing that have been accumulating for some months, I came across one from you containing seeds of Allium circinatum and Fringed Gentian, which does not appear to have been answered. It probably came at a time when I was pressed with work and laid aside for the time and forgotten. I wish to thank you for these seeds and beg your pardon for my neglect to do so at the proper time. Your account of these plants is very interesting to me, and I intend to plant these seeds at once and see what they will do here.

That mistake of the man who pulled up the larch trees would have been laughable if it had not been
so serious. Ignorance is not always bliss, nor is it always safe to reason from false premises. He will be likely to remember hereafter that larches are deciduous trees.

What lovely lamb-like weather March is giving us. I hope you are well enough to enjoy it.

Very truly yours
Chas H. Peck

March 18th '98

Glens Falls
42 Elm Street

Dear Mr. Peck,

I received your kind letter.

I am somewhat anxious to have you try the Adlumia seed because I wish to get some more evidence of the loss of vitality in constant growth from seed. This seed which I sent to you is fresh from its long sleep in the soil of a deep wood. Some of it in a pine forest. Some along the rocky walls of a hill, but every one had grown in the track of a wind which had thrown down the trees in its way, and exposed the soil to the sunshine. Then the Adlumia always springs up and for a good many generations grows vigorously, then begins to fail in strength, and finally ceases to germinate though the plants that do grow ripen seed as usual. Yesterday a lady gave me a history of the Adlumia along the border of her garden. She told me exactly what I have been told before, that it was replaced by a smaller plant somewhat like it at first, but with smaller and darker flowers and leaves. It grew up about three feet. Of course, that was Fumaria officinalis. It is absurd to suppose that there is any connection between the two plants, but the two follow each other in that way so often that I am curious about them. I am also curious to know if the seeds of the Adlumia cease to germinate because of overgrowth, and I am curious to know when the seeds grew that spring up so freely in the track of a hurricane in the primeval forest.

I have still to thank you for the copy of your lecture on the Abies. I have received from Mr. Britton a pamphlet on the discoveries of varieties in Ophioglossoides [ferns]. Both are very interesting.

I have promised if I keep as well as I am at present to follow the roads made by the pulp-wood cutters along our mountains. I can see the roads zigzagging along the mountain sides. It will give us a good chance for close observation. I am very well so far and hope to keep so. . . . I hope that your next season will be all that you wish for.

Very truly yours
Mrs. L. A. Millington

Millington returned to her home in New Russia quite late in the spring. Nevertheless she had some satisfying June botanizing. She collected specimens and shared them with Peck and others, found some unusual ferns, and made a carriage excursion to Vermont. Studying the spruces went on from season to season.

The ferns had long been one of Millington’s favorite plant groups. Twenty-five years earlier, in an essay on ferns, she wrote: “I am not sure but they [ferns] are the very crème de la crème of our botanical society.” Although clothed in the descriptive excesses of Victorian writing, her article contained good information from her field experience about the habitat, growth, morphology, and ecology of many common and not-so-common species and varieties. At this time she also made the observations Eaton included in his treatise on ferns. She told Peck about her attempts at fern culture: “I have grown several sorts of ferns from spores . . . .” From Millington’s comments in her next two letters we can conclude that Peck was interested in her fern finds and wanted specimens for the state herbarium.

[New Russia]
June 28th [1898]

Dear Mr. Peck,

I have been waiting for my fern to ripen its fruit a little more before I gathered it to send to you, but as I found in my last visit that a tiny maggot was eating the fruit, I took the very last fruitful frond. I tried to press it, and in my anxiety to see it doing well I opened it too soon. The frond has lost its beauty, but perhaps you can tell me more about it. I thought it Aspidium Goldianum. I have had a Goldie’s fern, but cannot remember much about it. . . . I have never found it here before.

. . . .

In looking over the grass to see if I could find Fringed Gentian I found an abundance of Ophioglossum vulgatum [adder’s tongue fern]. It seems to be very well distributed.

Last week I took a little walk with some friends about the hill where I used to look over the Abies. To my surprise I found that almost every tree with cones had retained them and they were rather small.
Young spruces were nearly all peculiar in having very slender needles, and the most of them very short ones. As all our mountains are being stripped of their spruce trees it hurts me to think of the ignorant hands that lay them low. It seems a desecration to have them treated so hardly. . . .

Yours truly
Mrs L A Millington

[New Russia]
July 16th [1898]

Dear Mr Peck,

. . . Thank you for determining the fern for me. I have never seen it here before. I found it with our more fine large fern Aspidium intermedium and think that I went over the two at first all right for I find Aspidium var. cristatum marked. . . . I did not send the Ophioglossum after I got it. Could not get it ready as I pressed it, but if you prefer to have fresh plants I will send some. . . . In the same meadow I found a great many small orchids which I will send you a few when I send the ferns, if you wish. . . . Very few of the fungi have appeared so far. . . .

Our Rhododendron maxima blossomed beautifully and made a fine growth. The hollow where it grows is perhaps three or maybe four miles from the Keene road leading through the Bald Mountain Pass to Mineville. It lies south of the road. We left the road to follow an old lumber road for a mile; then turned southeast. Had a little hunt for it, but were successful. It is in a deep hollow full of very cold springs. There are hundreds of plants.

How strangely some plants appear at long intervals. Bladder Campion and one of the Penstemons appeared in an old field not tilled for four years. I never saw the Campion here before, and I think the Penstemon either, but am not sure.

Very truly yours
Mrs Lucy A Millington

Millington’s knowledge of the fungi was only superficial, and without Peck’s replies and his identifications of her collections we are frequently left with unanswered questions. “We found today several sorts [mushrooms]. One was the orange milk, and another sort that turned a vivid green instantly on being broken, in a few more nearly black as in this fringed specimen . . . .” (23 August). We can be certain, however, that anything new and unusual found its way into the state herbarium. The lack of Peck’s letters is not so keenly felt where the higher plants are concerned. Millington knew these well, and her identifications of them are reliable without benefit of Peck’s corroboration.

[New Russia]
Sept 27th [1898]

Dear Mr Peck,

. . . I found yesterday so large and robust a specimen of Gleaster triplex that I wished to show it to somebody. It is very ugly and people wonder at it. Now I have found along our dear ramble three Geasters. More than I would have believed possible, and yet I do not find the very large white one that I found at least 25 years ago. It was as large as a large hen’s egg, and the divisions of the star were perfect on the globe before the points opened. If my Withering English botanies had not been burned I could have told what its name was. All my finds were recorded on the margins of my books. My Manual was so full that I was foolishly proud of it, but it had sewed in the first page my last note from Mr. Wm H. Leggett written only a week before his death. I missed his letters. All of them were dear to me, for he could explain every little thing that seemed difficult to such a poor botanist as I.

. . . .

In looking over your “Spruce of the Adirondacs” I find one or two things that I should like to discuss. By the by, do you know any fir trees that have an offensive smell like the spruce that is spoken of? It is a fine robust tree, but very disagreeable in smell! I see occasionally letters in the Tribune deploring the destruction of the spruce trees all through the Adirondacs. How very little a city man knows of the real condition of things. Sometimes I think the taking out the old trees will benefit the rest. The danger of fire is all that is to be feared and sure one or two fires are not final calamities. Our large spruces are so disfigured by the beetles that I cannot help feeling sorry for them. They look unhappy, and my experience is that new fresh and vigorous trees will spring up in place of the old. So let the thinning out go on.

I have wanted to tell you of a sphagnous swamp in Warrensburg where I went before I went to the Davis Swamp. It is near Spruce Mountain. Belonged to the Woodward Estate. Is or was densely clothed with young, slender spruce trees. I could not see a twisted or bent limb, for it was the distorted trees that I was looking for. I had seen such years before, and I suspected parasites. In the Woodward swamp the sphagnum seemed to be thin. My companion in the search jumped a little on the wet moss,
and the ground around quaked so that the trees trembled where I stood. The trees as you say are like bamboo rods.

I am glad you spent a day on Marcy.** I shall look for the Report with interest, for what I saw on Diks Peak Sept 7th nearly 25 years ago. *Ledum* [Labrador tea] in bloom and many others. Strangest of all, the dwarf spruce and the remains of giant lichens of which only the stems remained, white as snow and like branching pipe stems or strange bones—they were so white.

Yours truly
Mrs L A M

Many subjects recurred in the Millington-Peck discussions from year to year: the progress of transplants, better specimens, new localities for known species, effects of weather, and annual ecological changes. Each growing season provided another opportunity for additional finds and observations. Millington’s next letter and Peck’s reply illustrate well this continuity of interest. The occurrence of root bulblets in the enchanter’s nightshade (*Circœa*) was first mentioned more than a year before (“I... found [*Circœa alpina*] growing from a bulblet and the slender roots just beginning to form a new bulblet,” 6 August 1897); the transplanted western aster had a three-year history in their correspondence (13 October 1895); and they had been struggling with the various kinds of spruce even longer (31 July 1894). Letter-writing emerges as a problem-solving tool and the 19th-century substitute for the present-day face-to-face conference between fellow researchers.

[New Russia]
Oct 3d 1898

Dear Mr Peck

I send a few specimens of *Circœa* bulblets. The stolons are very slender and though I tried to be very careful the bulblet fell off every time in spite of me... While I looked for them, everything seemed suddenly to have grown bulbous roots. The loose compound of decaying vegetable material was full of them... Is your Aster a success? I am sending some to an old friend, Thomas Mechan.

Very truly yours
Mrs. L A M

Dear Mrs. Millington:

On my return this morning from a short absence—a visit to Kasoag swamp in Oswego county, I found your welcome letter with the box of bulblets. Those of the *Circœa* are better than those sent before. The others I take to belong to *Lycopœs Virginicus*. . . .

The fungus is probably some *Lactarius* changed in color by parasites. The red color is due to an attack of a parasitic fungus, *Hypomyces Lactifluorum* Schw. This often covers the whole host plant and gives it a beautiful red color.

The *Aster* of which you kindly sent me roots 2 or 3 years ago is a grand success. There is, or was till yesterday, a clump of 13 stout stems about 6 feet tall, each one bearing a massive panicle of large densely placed heads of most beautiful bright purple flowers. If they were in a huge flower pot and could be taken to the fair I think they would take a prize. The storm yesterday broke one stem down and Mrs. Peck was utilizing its blossoms this morning by filling a flower vase with them.

... My observations on the spruces this season show me that several things in the pamphlet on the Adirondack spruces should be modified or changed. For instance, I have seen a little White Spruce less than 4 ft high bearing cones. I have found young cones of White Spruce purplish as well as pale green. Also great variation in the degree of pubescence of twigs in the Black Spruce—also in character of foliage. The more I study the spruces the more confused the specific limits become. I have failed to find anything that meets Britton’s description of the Red Spruce and have asked him to send me if possible, a specimen of that species.

I am interested in the swamp (Woodwards swamp) you speak of near Warrensburg. Which direction is it from the village and about how far. Can you give me a diagram and directions so that I could find it easily. Thanking you for your many acts of kindness I am

Very truly yours
Chas H. Peck

Millington replied immediately with more observations on *Circœa*, detailed directions for getting to Woodwards Swamp, and words of encouragement: “I can understand your difficulties with the spruces... Do not feel anxious. Your clear head and habit of accurate comparison will help you through every dif-
ficulty if you can get material to work with." She added with regret: "As for me, I am very much afraid that I do not help you as I would wish. . . . I think my sleepless nights have demoralized me."

[New Russia]
October 9 '98

Dear Mr. Peck

I would have answered your letter before, but I have been ill for a few days and could not sit up to write.

I was glad to hear a good report of the Asters, as I have been sending some to Thomas Meehan. I heard . . . a few days since that a new Aster had been introduced larger than ours of a bluer purple. In fact, almost a solid deep blue. If I were but a few years younger and stronger, I would try hybridizing them myself, just as I used to do, but I cannot now. . . .

. . . . . . . . . .

I can understand your difficulties with the spruces, for I in looking them over long ago felt perfectly helpless. The infinite variation, and apparently no sure point of fixing on. There seemed to me to be a great number of hybrids, some very near and some very far from all my known standards. I gave it up in despair. I can remember long ago getting fresh cones from the White Spruce. I knew nothing of botany then, but the large cones were delicious as the finest flower in color and fragrance. I used always to get a few as surely as I got other early flowers. I got them from small trees, some not more than four feet tall, some six, and I could not reach them higher. I will ask an old lumberman who told me some time ago about the black and red spruces that he had cut, and if he can I know that he will get me specimens. Do not feel anxious. Your clear head and habit of accurate comparison will help you through every difficulty if you can get material to work with.

As for me, I am very much afraid that I do not help you as I would wish, for I am sure that I have never written so bad a letter as this. I think my sleepless nights have demoralized me. I hope that you can decipher my many missions and commissions and interpolations.

About the Woodard [sic] Swamp. It is north of the village [Warrenburg, Warren County], north of the road that turns to the left toward Johnsburg. The road to it turns to the left also, a little beyond the bridge that is on the road to Chester. There is a farm and a house almost out of sight further on as I saw it the year that I found the Arctuthbium. Near the house was a road to a mill and the swamp. I have not been there since, but there must have been many changes, as the owner of the land was very old and his grown-up children anxious to realize from the sale of the large tracts of spruce timber as the daughter told me when she took me to the swamp. There is a line of spruce swamps further on along the same stream that runs along the Davis and the Woodard Swamp. You can tell by inquiring. I wish that you could see them all. I was at the Davis Swamp once in October and once in January, and it was fine each time.

Very truly yours

L A M

1899

This has indeed been a poor season for fleshy fungi. . . . I fear I shall have but little to report for this year.

—Peck, 20 September 1899

There is so much to learn, and I have learned so much from you in our long correspondence that I shall be quite happy if I can meet you and show you a little of our valley.

—Millington, 30 October 1899

In 1899 the Millington-Peck correspondence comprised relatively few letters. One topic received more attention than any other: disease in the fruit orchard. Millington did not have to go far afield to gather first-hand information on this subject. Orcharding was an important occupation among the farmers in Pleasant Valley; the Bishops raised Russian and Siberian apples, pears, cherries, and plums, as well as the native varieties. In the face of a fruit crop failing for a reason she could not identify, Millington naturally turned to Peck, as she had 20 years earlier when the peach yellows threatened her Michigan orchard.

A very dry summer that year made botanizing poor. Apparently Millington found nothing unusual to share with Peck. Perhaps her continually diminishing ability to get about kept her from exploring. Whatever the reason, after a brief note on 8 June from New Russia, in which she alerted Peck to some
specimens of parasitized choke-cherry stems that were on their way to him, it was fall before she wrote again.

On 18 September Millington sent a fungus for Peck’s identification and reported finding “two uncommonly fine Botrychium lanceolatum [moonwort fern]. The finest I ever saw. Beautifully pinnatifid, and in a quite unusual manner...” She continued: “Our Russian pears have suffered in this weather. All the leaves dropped from some trees, leaving the fruit, which when picked was much better than we had expected. Some varieties were very large and fine. They are sweet, all of them, and excellent when baked. Those which dropped their leaves are growing new leaves and blossoms, bankrupting the tree for next year. I think that they will die.”

We have the letter Peck wrote in immediate reply. He identified the fungus Millington had sent and commented on the condition of the Russian pears in the Bishop orchards.

University of the State of New York
State Museum
State botanist’s office, Room 27
Capitol, Albany, N.Y. Sept. 20 ’99

Dear Mrs. Millington

The specimens of fungus you send are a form of Schizophyllum commune Fr. They have a peculiar appearance which is probably due to their peculiar place of growth.

This has indeed been a poor season for fleshy fungi. I never found them so scarce the whole season through before. I fear I shall have but little to report for this year.

The Russian pears are indeed behaving curiously, but though their fruit may be ruined for next year, if we should have a late fall so that they may have time to form new leaf buds I should hope they might live through it. Perhaps enough buds will remain dormant in any event to preserve the life of the trees.

Very truly yours
Chas H. Peck

A month later, with fall well advanced, Millington sent Peck some fringed gentian specimens for the herbarium. Her chief concern, however, was the failure of the apple crop. Could the diseased thorn trees she had observed in the woods have some connection with the diseased apples? She sought Peck’s opinion in her letter of 19 October:

In my walks near home I see things that set me into a train of thought that makes me wish that my good friend Mr. Peck were a little nearer, so that I could show him things that specially come in his line. Besides, I wish he could work at some of the things which are so troublesome to us all. I refer to the fungus which troubles our apples. I refer my knowledge of it to the earliest appearance of a similar, if not the same, thing in the common thorn apple. I heard of it first along Lake George, and I saw trees so completely infected that not a leaf seemed to be sound. I was studying microscopic botany myself, and I studied the diseased leaves and twigs and cultivated the fungus, but there was no conclusion that I could come to. But this I know: that the thorn apples in a few years were diseased like the apples in the orchards. I have heard, too, that the service berries were diseased, but I do not know of [this] personally. But I do know that the thorn trees bore fruit that became brown in a short time. They were hard and soon decayed like our apples, of which I do not doubt you know a great deal more than I. Everybody seems to be [in] the dark about it as they were not long ago about the yellows in peaches. I wish that you might be able to discover the cause, and so the cure. We have a great deal of orcharding. Our trees grow very fine and bear abundantly, but every apple is worthless. Our Wealthys, our Duchess, and Fameuse were without equals anywhere, and the most perfect apples that I ever saw were the Chenango Strawberries. Now they are of no use to anyone. Our hillsides are covered with the thorn trees. The woods are full of them, and I have been afraid of them ever since I saw them in Hague so diseased. I found a twig a few days [ago] badly diseased. It does not follow, of course, that they diseased the apples, but you know so much of their different generations that I wish you would be kind enough to tell me something, that is if you can understand what I write.

Within the week, on 25 October, Peck replied from his office at the Capitol in Albany:

Dear Mrs Millington

Last week I spent in Warrensburg and vicinity looking after botanical specimens, especially of fungi. I visited Davis Swamp, the locality of your original discovery of the Arceuthobium. It is still there but
nearly all the spruces large enough to make pulp
wood have been cut. My absence has caused some
delay in acknowledging the receipt of the fine
specimens of Fringed Gentian you so kindly sent. I am
very thankful for them even though the main stem
had been mowed off. Nature has done all she could
to repair the injury.

I can not speak as confidently about the disease of
apples you mention as I could if I could see a speci-
men, but I suspect from your references to it that it
may be due to the fungus we call _Sphaeropsis malorum_.
There are other fungi that attack them, one popularly
called the apple scab, another the bitter rot, and an-
other the plum rot because it is especially destructive
to plums. But the _Sphaeropsis_ in some places is spe-
cially destructive, causing the fruit to rot on the trees
and destroying nearly every apple. I saw an example
of this some years ago in Schoharie county. Nearly
every apple on the trees was brown with decay and
specimens were covered with minute black dots —
the spore cases of the fungus. Sound apples placed
in a drawer with one of these diseased apples would
soon be affected by the disease, the spores lodging
on them and communicating the disease to them.
One of the men at the Geneva Agric. Exp. Station
has been at work on this disease recently and will
probably soon give us a Bulletin on the subject. If I
have surmised correctly the character and cause of
the disease you ought yet to be able to find specimens
on or under the trees that will show the black dots
of spore cases just under the skin and puffing it up
as little black pimples.

The plum rot has sometimes taken nearly every
plum on some of my trees before it would ripen, but
it rarely injures apples unless there is some break in
the skin to give it access to the flesh. This produces
its spores in little gray dusty tufts on the outside. It
also destroys peaches and cherries.

A happy outcome of the orchard problems
was an invitation to Peck to come to New
Russia the following season. It appeared that
at long last the two botanists would meet.
Millington and her brother invited Peck to
visit them to inspect their orchards—"... to
see the fruit growing and to have you select
your own specimens for examination." But
Millington had more in mind than the failing
apple crop. She anticipated sharing with Peck
her favorite botanical haunts, discussed over
the years in their long correspondence, and
the places where she had collected so many
specimens for their mutual study. She spoke
of her pleasure at the prospect of meeting him
and showing him her rambles and "a little of
our valley." "I should enjoy having you here
very much indeed," she wrote, and "... in
the meantime I shall think of all I wish to show
you."

[New Russia]
Monday Oct 30th '99

Dear Mr Peck

I do not think the fungus which infests our apples
is bitter rot. The apples look well and retain their
flavor, but have streaks through which sooner
or later cause them to decay. They seem to run any-
where through the flesh and become dry if the apple
does not decay. They are hard, and a pale yellowish
slightly granulated streak which turns dark yellow
or a brownish color if the apple is cut. If I had had
a suitable microscope I should have been looking
them over all this time. We will send you some of
our apples that are infested. I think they all are. Yet
they make just as nice cooking apples as ever if we
can get enough sound pieces together to cook. They
taste just as well as ever, and most of them grow as
large. During the hot dry weather they ripened and
decayed very soon, falling from the trees. Now and
then one began to decay on the tree. The very great
heat was bad for them.

... I am pleased to find that somebody is working
on this apple trouble. Our apples have always been
very fine, and now my brother is discouraged just
when our trees have come into bearing to not have
any return for all his trouble and expense in setting
the orchard. He has had foreign trees for trial here
and set a good many which failed and a few which
have done well. The heat is too great for the Russian
and Siberian trees, and the frost hurts them quite as
much as the natives. The apples were not as good as
our own, and the cherries were no surer than one or
two that we had. The Duchess, Chenango Straw-
berry, and Wealthy were finer than I ever saw any-
where.

Now, Mr Peck, my brother says that if you will
make us a visit next year he will help you to have
as good a time botanizing among us, or anywhere
near us, that you choose, as he possibly can. He wants
you to see the fruit growing and to have you select
your own specimens for examination. I should enjoy
having you here very much indeed. But I do not call
any time my own or look for any more than each
day as it passes, but I hope to stay a little longer and
learn a little more. There is so much to learn, and I
have learned so much from you in our long correspondence that I shall be quite happy if I can meet you and show you a little of our valley.

I hope that your trip to Warrensburg was very successful and that next year we shall see you here and that you will be as happy as we should like to make you, although we are but plain farmer folks.

Mrs L A Millington

[New Russia]
Nov 24th '99

Dear Mr Peck,

I should have written long ago to tell you how pleased I am at the prospect of meeting you next year. I sincerely hope that you will be able to come and that the season will be all that you wish.

In the meantime I shall think of all I wish to show you. You can follow wood roads along the hills, or lumbermen’s roads up the mountains where the spruce trees are being taken away. Two years ago the woods were swarming with fungi, and I am still looking for the large white Geaster that I found here so many years ago—the only ones that I ever saw until I found the Geaster velutina. I had my English botanies then and my books on microscopic fungi. . . . How I used to love to cultivate them and watch their changes.

. . . I shall have much pleasure in showing you our rambles. We think them excellent places for botanizing. They give us such advantages for close inspection, and near-at-hand observation is best of all. I thank you very much for consenting to come here and hope that you will find your visit both pleasant and profitable.

Very truly yours

Mrs. Lucy A Millington

Millington and Peck never met. Seven weeks after she wrote the above letter, Millington died at her home in New Russia. The following letter to Peck from her daughter closes the Millington file in the archives of the New York State Museum.

Charles H. Peck
State Botanist
Albany, N.Y.
Dear Sir,

I beg to acknowledge in behalf of my mother, Mrs. L. A. Millington, the receipt of your official reports for 1898 with accompanying plates.

It is my painful duty to inform you that she died of pneumonia on the 16th of Jan. at her home in New Russia, Essex Co. N. Y. after a brief illness.

I thank you for the compliment paid her attainments by the sending of the report and shall always treasure it on that account.

Very Respectfully
Mrs. James S. Garrett
Glens Falls
N.Y.

Epilogue

When the young Liberty Hyde Bailey and Lucy Bishop Millington parted in South Haven, Michigan, in 1878, she gave him her botany-case as a memento of their two-year botanical friendship. In it she had carried the first-discovered specimens of the dwarf mistletoe, Arceuthobium pusillum. At the end of an illustrious career, Bailey, when he was 85 years old, recalled her gift and paid Millington glowing tribute: “She left me a precious memento, which I still cherish. It is a small botany-case, painted bright red when she gave it to me and which I yet keep in that color. . . . The strap, of course, is recent but it is a duplicate of the old one, with the original buckle. The box is eighteen inches long and seven and one-half inches high, three inches thick. . . . [On one end] is a compartment about three inches deep with a cover, in which to place moving or special things, for Mrs. Millington collected other objects than plants. On the other end is an open cup in which she carried a bottle of water, for she had a microscope and had studied infusoria. This collecting-case I carried through my college years and long thereafter.”

After Bailey left South Haven, he never saw Lucy Millington again. Some 60 years later he could say: “. . . she took such pains to encourage me and resolved so many of my puzzles that memory of her is yet a luster of my youth.”

A tribute was paid all members of the Bish-
op family on 18 August 1929 when friends and neighbors unveiled a memorial to them in the public park at New Russia, the hamlet founded by Elijah Bishop, Lucy’s grandfather, in 1793. Until the death of Bainbridge, Lucy’s youngest brother, in 1905, a continuous line of Bishops furnished leadership for the folks in Pleasant Valley not only by their abundant natural talents but also by their capacity for independent, creative thought and action. A great natural boulder, which still stands in the small park, bears a bronze tablet that reads:

To the memory of
THE BISHOP FAMILY
1793–1905
Endowed with many talents
Leaders in pioneer activities
Good neighbors
Lovers of these hills

And there is a final word from Lucy Millington. An undated letter, addressed “Mr Editor,” is part of the small collection of Millington’s unpublished writings preserved by family members. When she wrote it, she had just finished rereading Alfred Russel Wallace’s The Malay archipelago and The naturalist on the River Amazons by Henry Walter Bates, in which the wonders of the luxuriant tropical forests and the beauties of the “maze of green leaves and scattered flowers” are described. She was moved to reflect on Nature’s displays in the temperate zones, “thousands of acres of blossoms that for weeks live and die, and bloom again from day to day, unseen, and as little known as the farthest forest of the Amazon.” She wrote: “We have in these Adirondack Mountains, not every year, but every now and then, a show of color unsurpassed in this wide earth.” She went on to describe one such occasion: “There is a mass of hills—mountains I should say—whose faintest undulations were shown for miles and miles, from horizon to the nearest range, in the blended shades of purplish pink of the Great Willow Herb, or Epilobium angustifolium. To the right and left, as far as I could see, there was the same solid glow of delicate color. No trees broke the even massing of the rosy bloom. Only the soft undulations of mountain, the shadowing of hollows, and the lighter glow of uplifted peaks. It was not for a few days only, but for weeks that this beautiful spectacle could be seen. . . .”

The great willow herb was not the only contributor to the botanical scene Millington described. The climbing fumitory, Adlumia cirrhosa, a biennial, was another “insignificant, frail little plant” that “became through numbers a wonderful picture in a landscape,” in its second year becoming a “wildly luxuriant far-reaching vine . . . with wretched masses of pale pink flowers.” She continued: “I have seen in the old Adirondacks great hills which owed their pale mist-like pinkish bloom to this dear little plant, whose seeds are in the soil of the uncultivated forest land everywhere. Let the wind fell a tree or two, or a camping party cut a few for fuel, or a fire left smouldering run across a hill, then come the Epilobium and the Adlumia, finer far in their riot of color and massing of species than any tropical scenery on earth.”

And she concluded: “I think with regret sometimes of the prairies blazing with flowers, but, after all, the possibilities are with these dear old mountains, from the flowering of deciduous trees to their autumn glory, and I am content.”

The Natural-History Writings of Lucy A. Millington


Acknowledgments

Historical research, perhaps more than other kinds of investigation, is in part dependent for its success on the skill, imagination, and willing help of many people. At least, this has been my experience in piecing together the details of Lucy Bishop Millington’s life and her interest in botany. Librarians, archivists, and curators at widely scattered institutions have at one time or another dictated some of the turns in a frequently obscure path. For their willingness to pursue the most remote source or the smallest clue, and their enthusiasm in doing so, I am most grateful.

My first thanks go to the New York State Museum in Albany, New York, for permission to use the Millington letters, which are preserved among the museum’s mycological collections. I am particularly indebted to Eleanor A. Gossen, librarian at the State Museum Science Service Library, for first calling the letters to my attention and for subsequently following the project with interest.

For sharing the resources of their libraries and their help in ferreting out the Bishop family genealogy I thank especially Eleanor Rossiter, cataloguer and researcher at the Brewster Library, and Patricia Casselman, of the Essex County Historical Society, Elizabethtown, New York; and Mrs. Emmet (Peggy) O’Brien, Keene Valley Library Association, Keene Valley, New York, who, sadly, did not live to see the completion of this project, to which she lent such enthusiastic support. The support and interest of these women were equally as important as their help.

I must express my gratitude to many other libraries and museums where staff members were invariably helpful, among them the South Haven Memorial Library and the Liberty Hyde Bailey Museum, Mrs. Jane Works, president, in South Haven, Michigan; the Crandall Library and the Chapman Historical Museum of the Glens Falls-Queensbury Historical Association in Glens Falls, New York; and the many fine libraries in Minnesota, including the Minnesota Historical Society Library, St. Paul Public Library, Minneapolis Public Library, Ramsey County Library, and the numerous libraries of the University of Minnesota, especially the Central Library of the St. Paul Campus. The assistance of knowledgeable people at all these institutions was invaluable.

Special mention must be made of the kindness of John Austin, who furnished many details pertaining to the Millington family; of the generosity of Mrs. Valeria Trout and David V. Trout in sharing notes about Lucy Millington from the Alexander Lawrie diaries; of the kindness of Richard W. Lawrence, Jr., president of the Bruce L. Crary Foundation, Inc., in giving permission to reproduce the Alexander Lawrie paintings; of the help of Michael E. Ostry in providing photographs of the dwarf mistletoe; and of Mrs. Beulah Deming, owner of the Bishop homestead in New Russia, New York, who allowed me the privilege of sitting beside the fireplace where Lucy Millington wrote many of her letters.

Significant impetus was given this study by my discovery of Dr. Richard D. Garrett, great-grandson of Lucy Millington, and his wife, Peggy. The primary documentation they supplied was a substantial and important contribution to the investigation. The Garretts’ friendliness, hospitality, and sharing of family treasures without hesitation have been among the greatest pleasures of the project.

And finally, my thanks to my sister and her husband, Sylvia and Herbert Lewthwaite, for their companionship and time in exploring Lucy Millington’s homeland, the hamlet of New Russia, New York, and the beautiful Adirondack Mountains she loved so well.

Notes and References

2. Four of Peck’s letters in reply are in the possession of Richard D. Garrett, great-grandson of Lucy Millington, Hudson Falls, New York. Dr. Garrett has, in addition, manuscript copies of several stories and numerous poems by Millington. Most of these are not science-related and are therefore outside the scope of the present study.
3. From a memorial to the Bishop family in the public park at New Russia, N.Y.
4. Genealogical data for the Bishop family were assembled from the following sources: The encyclopedia of biography, vol. 15 (The American Historical Society of New York, Inc., 1924); J. E. Bishop, Bishop families in America (news bulletins issued semiannually in Homewood, Ill., 1959–); G. L. Brown, Pleasant Valley, A history of Elizabethtown, Essex County, New York (Post and Gazette Printing, Elizabethtown, N.Y., 1905); G. H. Smith, History of Essex County and history of the towns of Essex County (compilation of articles published in the Essex County Republican, Keeseville, N.Y., 1934–1943); H. P. Smith, ed., History of Essex County, with illustrations and biographical sketches of some of its prominent men and pioneers (D. Mason and Co., Syracuse, 1885). All these materials are available in the Brewster Memorial Library, Essex County Historical Society, Elizabethtown, N.Y.

5. Born 2 November 1763, New Milford, Litchfield County, Conn.; died 11 March 1839, New Russia, Essex County, N.Y. Married Tabitha Dorcas Holcomb ca. 1788, probably at Monkton, Addison County, Vt., by whom he had eight children. He had one child by a second wife.

6. Born Simsbury, Conn., 20 July 1769 (some discrepancy in reported dates); died 13 April 1810, New Russia, N.Y. Daughter of Benjamin Holcomb. She bore eight children (1789–1807).

7. This and the following quotation from The encyclopedia of biography [4], p. 33.

8. Lucius Bishop, born 20 November 1791, Monkton, Vt.; married (second wife) Anne Sheldon, 12 February 1822; died 21 October 1864, New Russia, N.Y. Anne Sheldon (1799–1877) was the daughter of Timothy Sheldon of Westport (Elizabethtown Post, 18 January 1900, obituary of Mrs. Lucy A. Millington). Census records of her place of birth are contradictory, giving both New York and Vermont. The former is probably correct. Hand states that Anne Sheldon was “thought to have come up from Dutchess County to the Gilliland Settlement, immediately after the Revolution” (A. N. Hand, “Unveiling Bishop memorial tablet,” The Record-Post, 12 September 1929, Au Sable Forks, N.Y.). The eight children of this marriage were: Lawrence (1823–1845); Lucy Ann (1825–1900); Bolivar (1827–1885); Annette (1828–1873); Midas (1832–1910); Amy Ann (1835–1892); Bainbridge (1837–1905); and Theodotus (1841–3). Lucie, Ann, and all the children except Midas and Theodotus are buried in the Boquet Cemetery, New Russia, N.Y.

9. Elizabethtown Post, 27 October 1864 (Lucius Bishop death notice); Elizabethtown Post, 18 January 1900 (Lucy A. Millington obituary). The hotel, built in 1826 by Lucius Bishop, remained the family homestead until it was destroyed by fire in the fall of 1885 (Elizabethtown Post, 27 April 1905, Bainbridge Bishop obituary).

10. A. N. Hand [8].


12. The encyclopedia of biography [4], p. 33.

13. A. N. Hand [8]. Judge Hand was a “native son,” born in Elizabethtown, N.Y., in 1869. Trained in law at Harvard University and recipient of several honorary degrees, he practiced law in New York City and rose to prominence as a judge in the U.S. District and Circuit Courts. He was a participant in numerous professional and philanthropic organizations. He is buried in Elizabethtown (Who was who in America, vol. 3, 1951–1960, p. 365).


15. Glens Falls Morning Star, Wednesday, 17 January 1900, p. 4; Glens Falls Daily Times, Wednesday, 17 January 1900, p. 8; Elizabethtown Post, Thursday, 18 January 1900. Source of the fourth account is unknown.


17. L. A. Millington [1], p. 239.

18. Date as recorded by Lucy Millington in a handwritten “Family record” in the possession of Richard D. Garrett.


20. A. N. Hand [8]. Opportunities for higher education were available at the time. A Miss Hatch ran a boarding school in Elizabethtown, and in 1834 the Essex County Academy was established in Westport on Lake Champlain. It had both a “Male Department” and a “Female Department,” and was “one of the most important schools along the lake receiving students from New York and Montreal as well as from Vermont and from all the towns of the county” (C. H. Royce, Bessemer: A history of Westport, Essex Co., N.Y. [Privately published, 1902], p. 381). The Troy Female Seminary, founded by Emma Willard, was also operating in the 1830s and was not too far away. We have no evidence, however, that Lucy Bishop attended any of these schools, or any other similar institutions.

21. The Bishop-Millington wedding certificate is part of the Richard D. Garrett collection. Stokes Millington
was born in Athol, Warren County, N.Y., near present-day Warrensburg, on 1 January 1810, but at the time of his marriage was "of Elizabethtown." The first two children were born in Elizabethtown in 1847 and 1852. Land-transaction records in Warren County establish residence for the family with fair certainty in Warrensburg from 1853 to 1855. In Glens Falls their home was on the northeastern corner of Bay and May Streets, where the dwelling still stands. Stokes Millington's occupation is listed in the various Glens Falls census reports (1860, 1865, 1870, 1875) as clerk, bookkeeper, merchant, customs house inspector, and government agent. When and where he died is not known.

22. Lawrence, b. 1847; Annette, b. 1852; and Frank, b. 1860. When Lucy Millington died in 1900, son Frank was deceased; son Lawrence lived in Chicago, Ill.; and daughter Annette was married to a dentist, James S. Garrett, and lived in Glens Falls.


25. Much of the information throughout this section is gathered from Millington's letters to Charles Peck presented in the following section.

26. See appended bibliography of Millington's publications for complete titles and citations.


28. Asa Gray, professor of botany, Harvard University; William H. Leggett, editor of the Bulletin of the Torrey Botanical Club; Thomas Meachan, State Botanist of Pennsylvania; Charles C. Parry, botanist to many government expeditions; George Engelmann, physician-botanist, St. Louis, Mo.

29. L. H. Bailey [14], p. 161. Bailey wrote his memories of Millington 60 years after the incidents he recorded took place. He said the Millingtons stayed in Michigan "about two years." Five years is closer to correct. They were living in South Haven in 1879 when they sold their Glens Falls, N.Y., home (land-transaction records in Warren County, N.Y.). They are listed in the 1880 South Haven census. Letters (in possession of Richard D. Garrett) to Lucy Millington from Charles Peck and George Engelmann place her in New Russia, N.Y., in 1882. Bailey states that when Lucy Millington returned east "she lived in Glens Falls until the death of her husband, when she went to the Bishops at her birthplace," but these statements have not been confirmed. Bailey's contact with Lucy Millington ended when he left South Haven, about two years after the Millingtons came there, to attend Michigan State (Agricultural) College in East Lansing.

30. Peck noted contributions by Millington to the New York State herbarium in several of his reports. Other Millington records of new localities for plant species are reported in the Bulletin of the Torrey Botanical Club 6(19, 20): 97, 109 (1876). In a letter to Millington (in the possession of Richard D. Garrett) Peck wrote on 1 August 1882: "I wish you could send us a specimen of the Penstemon grandiflorus for the Herbarium. It has not been reported from this State before so far as I know."


32. Letter Millington to Peck, 4 June 1894.


34. L. A. Millington [1], p. 240.

35. L. A. Millington [1], p. 238.


38. Hague is in Warren County, on the western shore of Lake George.

39. During the winter months Millington left her home in New Russia to stay with her daughter, Mrs. James S. Garrett, in Glens Falls.
40. Gentiana crinita, fringed gentian, is normally blue and sometimes, but rarely, white.
41. As State Botanist, Peck made an annual report on the condition of the herbarium, new additions to the collection, his botanical investigations, including descriptions of new species, and other activities in connection with his work. These reports (he wrote 46 between 1868 and 1913) carried his name and work to all parts of the scientific world. They were published as part of the New York State Museum Annual Report to the Board of Regents of the State University.
42. Peridermium is one of the microscopic rust fungi. Millington lost all her books, her microscope, and personal memorabilia in a disastrous fire, which in 1885 completely demolished the Bishop family homestead in New Russia where she was living at the time.
43. Clinton County, New York, is north of Essex County and adjacent to the Canadian border.
45. The first part of a 17-part series by Peck, entitled "Mushrooms and their use," appeared in the Cultivator and Country Gentleman: 59(2157): 422–423 (31 May 1894). Included were a large portrait of the author, "engraved (without the knowledge of the person represented) from a late photograph," and an account of the fine work being done by Professor Peck as State Botanist ("Our state botanist," p. 425).
46. Millington's "old manual," which was lost in the fire that destroyed her home, was without doubt Gray's Manual of the botany of the northern United States. . . . In an article about Gray when he died in 1888, Deane wrote: "In 1848 appeared a work, which, perhaps, more than any other, has been the constant companion of botanists of the northeastern United States, both at home and in the field. To all those interested in a knowledge of our plants, the Manual is a household word. This book . . . has passed through five editions, the last appearing in 1867. Of this there have been eight issues." (W. Deane, "Asa Gray," Bull. Torrey Bot. Club 15(3): 59–72 (1888). p. 64.)
47. William Withering, author of several works on British plants.
48. The spots on the underside of Millington's fern leaves, referred to as "worm eggs" by someone obviously uninformed in botany, were of course sporangia.
49. Quoted from the Alexander Lawrie diaries with the kind permission of their owner, Mrs. Valeria Trout, Marthoos, Ill.
50. P. O'Brien, "Alexander Lawrie, 1828–1917, Adirondack artist," Adirondac (Adirondack Mountain Club) 48 (May 1984). Benson J. Lossing, in 1866 in his book The Hudson from the wilderness to the sea (reissued 1972, Kennikat Press, Port Washington, N.Y.), described the appropriate dress for women when climbing (p. 27): "A woman needs a stout flannel dress, over shortened crinoline, of short dimensions, with loops and buttons to adjust its length; a hood and cape of the same materials, made so as to envelop the head and bust, and leave the arms free, woollen stockings, stout calfskin boots that cover the legs to the knee, well saturated with beeswax and talc. . . ."
51. Giant Mountain, elevation 4,622 feet, is southwest of Elizabethtown, Essex County, N.Y.
52. The mountain top plants were Gnaphalium, cudweed; Chara, one of a small group of plants that are intermediate between the algae and the higher plants, common and widely distributed in fresh water throughout the world (called stonewort or brittlewort because many species become encrusted with calcium carbonate); Chiogenea, creeping snowberry; and Hyphnum, shiny moss, or common hyphnum, found on decaying wood and forming flat spreads in wide mats.
53. Millington's discussion about kinds of spruce (Abies) reflects the general confusion that prevailed about the characteristics of the various members of the genus (her statements here are confused as well). The generic name Abies included species that are now assigned to Abies, Picea, and Tsuga. For example, Millington's Abies nigra (black spruce) is now called Picea mariana.
54. In the early 1870s the New York State Fair was held in Albany. Peck would know the site to which Millington referred. The species of Chara she found in
the canal was described by Dr. Timothy Field Allen (1837–1902), a New York City physician and one of the founders of the Torrey Botanical Club in 1871. He later became an authority on the stoneworts (Characeae), to which little attention had so far been paid in America. In 1891 he gave his extraordinary collection of stoneworts from all over the world to the New York Botanical Garden.


56. Millington’s efforts to help Watrous become a botanist were successful: she, too, contributed specimens to the state herbarium, which Peck noted in his reports for 1896, 1901, 1907, and 1912. Seventeen letters from Watrous to Peck are preserved in the mycological collections of the New York State Museum. The correspondence continued until 1912, several years after Millington’s death. “I do so miss my dear friend Mrs. Millington,” she wrote. (Letters kindly supplied by John H. Haines, Curator of Mycology at the New York State Museum.)

57. Mrs. W. S. Dana (Mrs. F. T. Parsons (Smith) Dana), How to know the wild flowers. A guide to the names, haunts, and habits of our common wild flowers (Charles Scribner’s Sons, New York, 1896). p. 216.

58. R. S. Mitchell and C. J. Sheviak, Rare plants of New York State (N.Y. St. Mus. Bull. 445, Univ. St. New York, St. Educ. Dept., Albany, N.Y., 1981), p. 31. The digging up of orchids in the wild still goes on, as we see from this brief note in a relatively recent issue of Audubon Action (December 1985) that reports under the title “Plant Nabber” about the activities of one hapless “orchid-poacher” on State lands: “A New York State youth was caught last July trying to remove 68 protected plants from Zurich Bog in Wayne County, and was subsequently fined $1,200, according to the state’s Department of Environmental Conservation law enforcement department. Ranger-naturalist Kent Lechner, who was in the bog to photograph a rare orchid in bloom, discovered the youth by following a trail of newly dug holes. Lechner said that the nabber wanted to transplant the plants, which included orchids, sundews, and pitcher plants, to create a bog environment in his backyard.

59. Millington’s definition of “blooming” was correct. Whipple says: “The sudden appearance in lakes and ponds of a surface scum composed of enormous numbers of algae or similar organisms is known as the phenomenon of water bloom, which is also called working or blooming of the lakes. . . . Blue-green algae are commonly responsible for this phenomenon” (G. C. Whipple, rev. by G. M. Fair and M. C. Whipple, The microscopy of drinking water (John Wiley and Sons, New York, 1954). Volvox, the alga Millington observed in a “blooming” condition, is a green alga that forms motile spherical-to-ovoid colonies, sometimes a millimeter or more in diameter.

60. G. F. Atkinson [36], pp. 107–108. Atkinson commented on the difficulties under which Peck worked. “There has been a lamentable lack of proper equipment in apparatus, exsiccata, and of assistance in the Botanical Division of the State Museum, not to mention the very inadequate rooms and space which were assigned to the State Botanist. . . . Dr. Peck, through nearly all the 48 years of his official connection with the Museum, worked single-handed and alone, carrying on his vast correspondence by hand, and caring as best he could for the large number of specimens collected by himself and communicated by his correspondents. . . . For the care of this very valuable collection, and for the continuance and building of the botanical interests of the State museum, New York should be more generous than it has been thus far.”


63. Mrs. W. S. Dana [57].

64. This comment probably was written by the editor, William H. Leggett (Bull. Torrey Bot. Club 4(5): 19–20 (1873)).

65. The balsam fir, with smooth bark and resin-containing blister, was called Abies balsamea then, as now. However, the species called here Abies nigr, the black spruce, is now called Picea mariana. It is uncertain what species is referred to below as A. canadensis—probably the hemlock, now called Tsuga canadensis.

66. The aster referred to here was the species Millington sent to Peck the previous fall (13 October 1895). Peck’s home was in Menands, a few miles north of Albany, N.Y.

67. N. L. Britton and A. Brown, An illustrated flora of the northern United States, Canada and the British possessions, from Newfoundland to the parallel of the southern boundary of Virginia, and from the Atlantic Ocean westward to the 102d meridian, 3 vols. (C. Scribner’s Sons, New York, 1896–1898). This work, although not a “popular botany” in Millington’s sense, remains a basic reference source today. The books in Millington’s li-


71. W. H. Gibson, *Our edible toadstools and mushrooms and how to distinguish them*. 30 col. plates, 57 other illus. by the author (Harper and Brothers, New York, 1895).


73. Recounted to Richard D. Garrett by his father, Millington’s grandson (communicated to the author by Garrett, 26 June 1984).

74. A peloria is an abnormal condition in which an individual of a species normally producing irregular flowers produces regular ones as the result of repetition of the normal irregularity. In 1872 Millington discovered a deformed feather which she sent to William Leggett, who in turn sent it to a German scientist for his opinion. Because of the regular repetition of the deformity in the feather, the latter declared it to be a “pelorial arrangement,” which was “heretofore unknown in animals.” (Letters in the possession of Richard D. Garrett.)

75. Members of the family Amanitaceae, which includes the deadly panther amanita (*A. pantherina*); poison amanita (*A. phalloides*); fly mushroom (*A. muscaria*); and the pure white destroying angel (*A. virosa*).

76. Indian pipe is not a fungus, but is a higher plant parasitic on roots or decaying vegetable matter. Generally white because it lacks chlorophyll, it might readily be thought a fungus by one not well versed in botany.

77. The two kinds of fumitory are two genera in the same family (Fumariaceae, fumitory family): the climbing fumitory, *Adlumia cirrhosa*, and the common fumitory, *Fumaria officinalis*. The former is a handsome vine, cultivated for festoons and bowers in shady places, whereas the latter does not climb at all.

78. The larch is a deciduous tree. The feathery needle-like leaves normally turn yellow and drop in the fall. Only bare limbs remain at Christmastime.


80. See earlier note on *Adlumia* and *Fumaria* [77].


83. D. C. Eaton [27].

84. The site of Millington’s discovery of *Arceuthobium* in 1871.

85. Mt. Marcy, elevation 5,344 feet, southwest of Elizabethtown, N.Y.


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