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LINNÆUS

(1707-1778)

BY JOHN MUIR

HE immortal Linnæus—Carl von Linné—was born in Sweden, a cold rocky country now famous forever. He was born in the bloom-time of the year, May 13th, 1707; and contemplating this great event, one may easily fancy every living thing dancing and singing and clapping hands for joy.

Whether descended from sea-kings and pirates as is most likely, or from fighting Normans or Goths, matters not; for he was a lover sent of God to revive and cheer and bless all mankind. And this he did in spite of crushing poverty, and all the black brood of disappointments and discouragements that ever beset the onway of genius. His parents were as poor and pious as the parents of great men usually are. He was a naturalist from his birth, and reveled in the bloom of the fields and gardens about his native village of Rashult as naturally as a bee. By his steady, slow-going neighbors he was looked on as one possessed. They did not know what to make of him; neither did his own father and mother. His father, a minister, naturally wished his son to follow in his footsteps, and with commendable self-denial saved money to send young Carl to school with this end in view. But the studies leading to the ministry did not interest the lad, and like other divine boys he was called a dunce. Accordingly, when his father visited the school and anxiously inquired how Carl was getting on, he was bluntly told that the boy was dull, had no brains, and could never be made into a minister or scholar of any kind. Under these dark circumstances, the best advice the schoolmaster was able to offer the discouraged father was to take away his boy and make a tailor or a shoemaker of him. Yet this was the boy who was to do the most of all for many generations to open men's eyes to see the beauty of God's gardens and the creatures that enliven them.

The real education of Linnæus began as soon as he could see. When only four years old he constantly questioned his father about the weeds and flowers around the house. His formal education began at the age of seven, when he was sent to a private school for three years; at the end of which time he entered another private school at Wexiö. In 1719, we are told, he was committed to the care of one Gabriel Hok, a teacher of repute, but who was as unsuccessful as his

predecessors had been in his efforts to overcome the lad's distaste for scholastic studies and his seemingly irrational liking for plants. In 1724 he entered the gymnasium, caring for nothing but botany and biology in general,—which in truth is almost everything. Here he managed to get together some of the books of the few Swedish authors who had written of plants, and over these he laboriously pored.

It was when he was in the gymnasium, at the age of seventeen, that his father was advised to make a tailor or shoemaker of his dullard. The old clergyman, grieved and disappointed at the outcome of twelve years' schooling, met Dr. Rothman, a practitioner of the town, to whom he mentioned his sad case. The doctor, a better judge of human nature than the minister, declared he could end the troubles of both father and son: he offered to board Carl the year that remained of the gymnasium course, and assured his father that though backward in theology, the boy would yet make a name in medicine and natural history. So Carl escaped cobbling, was kindly cared for by the good doctor, given instruction in physiology, and directed to Tournefort's system of botany, the best then in existence.

At the age of twenty he went to the University of Lund; and while studying there had the good fortune to lodge at the house of Dr. Stobæus, who had a museum of minerals, shells, dried plants, and birds, which made the heart of young Linnæus throb with joy. The learned doctor also had a library to which Carl at length gained access, and from which he got books on natural history, which he read stealthily by night against the rules of the orderly household. And thus genius made its own starry way, uncontrollable as the tides of the sea.

In the summer of 1728 Linnæus again met his benefactor Rothman, who urged him to leave Lund and go to Upsala, where educational advantages were better. Accordingly, with about forty dollars in his pocket,—all he was to expect from his father,—he set out for the university he was soon to make famous. Of course his little stock of money quickly melted away; and being a stranger, he could earn nothing by teaching. Nearly a year he passed in dire poverty, glad when he could get one hard meal a day. His worn-out shoes he patched with pasteboard. His eyes were full of plants, but his stomach was achingly empty most of the time. Only by chance meals from fellow-students, and others almost as poor as himself, did he manage to keep body and soul together. A course of starvation, it would seem, is a tremendous necessity in the training of Heaven's favorites.

During the hunger period, in the autumn of 1729, Linnæus was one day intently studying a plant in the academical garden, when a venerable minister happened to notice him, and asked what he was

doing,—whether he knew anything about plants, whence he came, etc. This clergyman was Olaf Celsius, professor of theology, who was then writing his 'Hierobotanicon.' He was quick to see, as well any naturalist might, that the starved and ragged student was no ordinary fellow. He therefore invited him to his house and fed him. How could he help it? And later, when he saw Linnæus's collection of plants and heard him talk about them, he gladly gave him a home. In the University at this time little attention was given to natural history; and it is said that Linnæus did not hear a single lecture on botany all the time he attended the classes. In 1729 he began to write his wonderful books: first a small one on the sexes of plants, which he showed to his friend Celsius, who in turn showed it to Professor Rudbeck, who knew something of botany. In the following year Rudbeck, who was growing old, appointed Linnæus his assistant; and the latter was now openly started on his flowery way, lecturing, traveling, and reveling in the wilderness of plants like a bee in a clover-field.

He now wrote his celebrated epoch-making 'Systema Naturæ.' At Amsterdam in Holland he dwelt a year with the famous Professor Boerhaave, and there published his 'Fundamenta Botanica.' A rich banker by the name of Clifford wiled him to his magnificent garden at Hartecamp, where he worked and lived like a prince; and there he published his 'Flora Lapponica,' containing the new genus *Linnæa*.

In 1736 he visited England, and was warmly welcomed by the plants and plant-lovers there. On his return to the Netherlands he completed his 'Genera Plantarum,' which may be regarded as the beginning of the natural systematic botany. This great work was followed in this hot, fertile, high-pressure period by his 'Classes Plantarum.' His industry and fertility were truly wonderful. Books came from his brain as from an inexhaustible fountain; and neither pleasure nor pain, praise nor blame, nor the weariness and exhaustion that stop common mortals, could abate one jot his overmastering enthusiasm, or divert him in the least from his glorious course.

In 1738 Linnæus established himself as a physician in Stockholm, and was married there the following year. In 1740 Rudbeck died, and Linnæus gained his place as professor of natural history at the University of Upsala, where he had so long and so bravely studied and starved. Thenceforth his life was all congenial work, flowers and sunshine, praise and fame. In 1750, after many other less notable works, he published 'Philosophia Botanica,' and three years later 'Species Plantarum.' He shone now like a sun; honors of all kinds poured in on him, kings wanted him at their courts, every university wanted him; but he remained true to his own country and his own work. Students from near and far gathered about him. The five

hundred at Upsala increased to fifteen hundred, attracted and inspired by his bright-burning love. He lived till 1778.

In person he is described as of medium height, with large limbs and wonderful eyes. If one may judge from the portrait statue erected to his memory in Upsala, his features were beautiful and serene beyond those of most men, and surely beyond those of most statues.

Of course plants were studied long before Linnæus, but mostly as food or medicine; and the collections of living plants were called "physic gardens." Solomon "spake of trees, from the cedar of Lebanon to the hyssop on the wall." The Chaldeans, Egyptians, and Greeks studied botany in some form or other; for the showy multitudes of plant-people could not fail to attract the attention of scholars in every age. About three hundred years before Christ, Theophrastus wrote a 'History of Plants,' in which he described about five hundred species supposed to be useful in medicine. The elder Pliny described about a thousand. But it was not until the sixteenth century that anything noteworthy was done in botany as a science. In 1583 Andreas Cæsalpinus, professor of botany at Padua, published a work called 'De Plantis,' in which he distributed some one thousand five hundred and twenty plants in fifteen classes, according to the differences of their fruits and flowers, and their being herbaceous or woody.

Then came John Ray, an Englishman, who died two years before Linnæus was born; and who published in 1682 'Methodus Plantarum,' in which he separated flowering from flowerless plants, and divided the former into Dicotyledons and Monocotyledons,—a marked advance in natural classification. Tournefort, a contemporary of Ray, was professor of botany in Paris in 1683; and published a systematic arrangement in 1694-1700, in which he described about eight thousand species of plants, divided into twenty-two classes.

Then came Linnæus, whose published works are said to number over one hundred and eighty, while many remain in manuscript. Much has been written by naturalists on the Linnæan system; and while recognizing its usefulness as a convenient index to nature's floral book, they seem puzzled to account for the revolution he effected in natural history, and his unparalleled influence. Even his most enthusiastic admirers seem at a loss to know the secret of his unrivaled power. The so-called Sexual system of Linnæus, they anxiously point out, was needful in bringing order out of chaos, and making a foundation for the "natural system" now universally adopted, and in preparing the way for the work of De Jussieu and De Candolle. Strong, they say, in body and mind, with marvelous industry and insight, Linnæus worked with the strength of ten. He improved the existing

distinctions of genera and species, introduced a better nomenclature on the binomial method, and invented the system founded on the stamens and pistils. In half praise, half apology, they claim that "his verbal accuracy and the terseness of his technical language" reduced the crude accumulations of his predecessors into available form, arranged their endless synonyms, cast out the confusing varieties of gardeners' terms, like a Moses led botanical science out of Egyptian darkness; and in fine, that he found biology a chaos and left it a cosmos.

But it is not in methods of classification, technical skill, tireless energy in making books and gathering plants, that we are to look for the secret of the marvelous influence he exerted, and which made him the king of naturalists. No. Dry words and dry facts, however clear-cut and polished, will not fire hearts. A botanist may be a giant in intellect, gather plants from the four quarters of the globe and pile them in labeled heaps as high as haystacks, without kindling a single spark of the love that fired the followers of Linnæus. In drying plants, botanists too often dry themselves. But Linnæus loved every living thing as his friend and brother, and his eyes never closed on the divine beauty and harmony and oneness they displayed. All the dry word-work he did, however technical and severe, was done to bring the plants and animals as living children of Nature forward into light to be loved. In the midst of his immense classifying labors, he seemed always to be saying in a low glowing undertone, "Come, darlings: I love you, and want everybody to love you! Come, stand in rows and let me see you and count you and call you by name." And they came—from his own Scandinavia, from the tundras of Lapland, from icy Siberia, from sunny India and Africa, from both the Americas, and from the isles of the seas. They came to his love, led by devoted disciples. For as a sun, he warmed others and inspired them; and thus warmed and inspired, they radiated like light over all the world and did the master's bidding. The beasts of the field came also to this solar man to be seen and warmed and loved; and the birds from every grove, and insects and creeping things, and fishes from the seas and streams, and crystals from the mountain caves,—all for love. And so his radiant influence works on, cheering and enlightening the world, and will go on while flowers bloom and birds sing.

A hundred years after Linnæus died, our own Asa Gray, Sir Joseph Hooker, and I were botanizing together on Mount Shasta, the northernmost of the great mountains of California; and when night came we camped in a flowery opening in a grand forest of silver firs. After supper I built a big fire, and the flowers and the trees, wondrously illumined, seemed to come forward and look on and listen as we

talked. Gray told many a story of his life and work on the Atlantic Alleghanies and in Harvard University; and Hooker told of his travels in the Himalayas, and of his work with Tyndall and Huxley and grand old Darwin. And of course we talked of trees, argued the relationship of varying species, etc.; and I remember that Sir Joseph, who in his long active life had traveled through all the great forests of the world, admitted, in reply to a question of mine, that in grandeur, variety, and beauty, no forest on the globe rivaled the great coniferous forests of my much-loved Sierra. But it was not what was said in praise of our majestic sequoias and cedars, firs and pines, that was most memorable that night. No: it was what was said of the lowly fragrant namesake of Linnæus,—*Linnæa borealis*. After a pause in the flow of our botanic conversation that great night, the like of which was never to be enjoyed by us again (for we soon separated and Gray died), as if speaking suddenly out of another country Gray said, "Muir, why have you not found *Linnæa* in California? It must be here or hereabouts on the northern boundary of the Sierra. I have heard of it, and have specimens from Washington and Oregon all through these northern woods, and you should have found it here." In reply, I said I had not forgotten *Linnæa*. "That fragrant little plant, making carpets beneath the cool woods of Canada and around the great lakes, has been a favorite of mine ever since I began to wander. I have found many of its relations and neighbors, high up in the mountain woods and around the glacier meadows; but *Linnæa* itself I have not yet found." "Well, nevertheless," said Gray, "the blessed fellow must be living hereabouts no great distance off." Then we let the camp fire die down to a heap of ruby coals, wrapped our blankets about us, and with *Linnæa* in our minds, fell asleep. Next morning Gray continued his work on the Shasta flanks, while Hooker and I made an excursion to the westward over one of the upper valleys of the Sacramento. About noon we came to one of the icy-cold branches of the river, paved with cobblestones; and after we forded it we noticed a green carpet on the bank, made of something we did not at first recognize, for it was not in bloom. Hooker, bestowing a keen botanic look on it, said "What is that?" then stooped and plucked a specimen and said, "Isn't that *Linnæa*? It's awfully like it." Then finding some of the withered flowers, he exclaimed, "It *is* *Linnæa*." This was the first time the blessed plant was recognized within the bounds of California; and it would seem that Gray had felt its presence the night before, on the mountain ten miles away.

It is a little slender, creeping, trailing evergreen, with oval crenate leaves, tiny thread-like peduncles standing straight up and dividing into two pedicels at the top, on each of which is hung a delicate,

fragrant white and purple flower. It was at the age of twenty-five that Linnæus made the most notable of his many long, lonely botanical excursions. He set out from Upsala and wandered afoot or on horseback northward through endless pine and birch woods, tundras, and meadows, and along the shores of countless lakes into Lapland, beyond the Arctic Circle; now wading in spongy bogs, now crossing broad glacier pavements and moraines and smooth ice-burnished bosses of rock, fringed with heathworts and birch: a wonderful journey of forty-six hundred miles, full of exciting experiences and charming plants. He brought back hundreds of specimens new to science, among which was a little fragrant evergreen that he liked the best of all. Soon after his return he handed a specimen of it to his friend Gronovius, pointed out its characters, and requested him to describe it and name it for him; saying that somehow he felt that this little plant was related to him and like him. So it was called *Linnæa borealis*, and keeps his memory green and flowery and fragrant all round the cool woods of the world.

Only last summer, when I was in the wildest part of the Rocky Mountains, where glaciers still linger and waterfalls like ribbons hang down the unscalable cliffs, I found *Linnæa* spreading and blooming in glorious exuberance far and wide over mossy ground, beneath spruce and pine,—the wildest and the gentlest, the most beautiful and most loveful of all the inhabitants of the wilderness.

Wherever *Linnæa* dwells, you will find enchanting woods and the dearest of the small plant-people,—chiogenes, *Clintonia*, orchids, heathworts, and hosts of bright mosses wearing golden crowns. No breath of malaria comes near *Linnæa*. The air and the scenery are always good enough for gods or men, and a divine charm pervades it that no mortal can escape. In *Linnæan* woods I always feel willing to encamp forever and forego even heaven. Never was man's memory more blessedly embalmed than is the memory of immortal Linnæus in this little flower. All around the cool ends of the world, while wild beauty endures, the devout pilgrim will see—

—"beneath dim aisles in odorous beds,
The slight *Linnæa* hang its twin-born heads,
And bless the monument of the man of flowers,
Which breathes his sweet fame through the northern bowers."

John Muir