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The Acadian Forest

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THE WILD GARDENS OF ACADIA

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THE ACADIAN FOREST

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GEORGE B. DORR

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1922

LAFAYETTE NATIONAL PARK MOUNT DESERT ISLAND THE ACADIAN FOREST

BY GEORGE B. DORR, *Supt.*

LAFAYETTE NATIONAL PARK, the sole eastern member of our national park system, lies in old French-Acadian territory upon the many-islanded and harbored coast of eastern Maine. The broad highway of the North Atlantic reaches to its foot, and the mountainous uplift that it occupies, unique on our Atlantic Coast, has been for centuries a landmark from the sea.

The rock is granite, superb in the sculptured forms it takes under glacial and surf erosion, frost and weathering, and magnificent to climb. It was the mountains' bare rock summits, sharp-cut at dusk against the western sky, which led Champlain, sailing from De Monts' first settlement on the Bay of Fundy, where our national boundary now commences at St. Croix, to name the Island "l'Isle des Monts deserts," "the Island of the Wild and Solitary Peaks."

Originally the molten granite, intruded under terrific pressure from unknown depths below into the yet older Cambrian strata that overlay it then and still surround it, formed a single mass, the length of the present island east and west. Across this, laid bare by the denudation of unmeasured ages, the recent ice-sheet, thousands of feet in thickness and bearing a heavy burden of gravel, rock and clay, ground its way, carving out a mountain range in miniature, with deeply divided peaks, valleys, lakes and streams, and containing at its midst, all but cutting the Island into two, the only glacial fiord — *Somes Sound* — on our Atlantic Coast.

This great variety of form and physical condition within a space so limited, the situation of the Island at the meeting point of the temperate and northern floras, of land

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climate and sea climate, and its position on the Atlantic Coast migration route of birds, the greatest originally on the Continent, give the park a unique place as a wild life sanctuary and opportunity for naturalists.

The coast of Maine is what physical geographers call a "drowned" coast, an old and worn land area invaded by the sea. The ancient coast line, the continental shelf, lies far to the eastward, marked by the fishing banks built upon it by the deposit left by stranded icebergs, drifted from the north, or by the ice-sheet in its melting. The waters between, supplied from the cold Arctic Current, rich in oxygen, and sun-penetrated largely to a bottom strewn with glacial drift, is rich in the microscopic floating vegetation that makes the basic food supply for oceanic animal life, and rich in that life, vertebrate and invertebrate, both in the forms biologists desire to study and in the food-fishes men have annually braved the ocean to obtain since Cabot's voyage to Cape Breton, four centuries ago, when his sailors are reported to have basketted the cod out from the sea at Miquelon.

Anciently this flooded area, now fish inhabited, was a broad coastal plain, clothed in forest and roamed by browsing animals — mastodons and mammoths, browsing horses of extinct species, and camels in their time, mingled with existing forms. The climate was mild; the fauna and the flora like our own but varied with vanished types. Then came the long winter of the Glacial period, advancing and retreating slowly, lasting long. Ice covered the land, hundreds and thousands of feet in thickness, to the mouth of the Hudson River at New York, and life retreated southward, suffering irreparable loss. The coast sank at Mount Desert hundreds of feet below its present level in relation to the sea, and when the mountains finally emerged, worn and striated, from the melting ice, it was as a group of

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lonely islets in an arctic ocean, whose stormy seas are still recorded in surf-cut cliffs upon the mountain-sides. Since then the land, relieved of that incalculable weight of ice — the cause probably of its depression — has again risen bringing the coast-line down to meet the now united Island, connected with it by a bridge.

"There flows the deep where grew the tree,
O Earth, what changes hast thou seen!
There, where the long street roars, hath been
The stillness of the central sea."

As a botanical area Mount Desert Island is singularly rich so far as forest fires and recent human agencies have not impoverished the natural growth, which will henceforth be protected and cared for within the national park bounds and restored where needful till it shall represent completely, as in a wild botanic garden, the whole Acadian region. Wild flowers are abundant from early spring, when the Trailing Arbutus or Mayflower puts forth its blossoms, till the Witch Hazel blooms in fall, scattering as it flowers its long-held seed. Orchids of the terrestrial species grow freely in beautiful and interesting forms, culminating in display at mid-summer in the superb Fringed Orchid with its pale purple flowers. The pure white Trillium with deep purple blotches, the Clintonia, forming great beds of splendid foliage in the woods, the Wild Iris and the Cardinal Flower along the banks of streams, the native Lilies, growing among beds of ferns, the decorative Twisted Stalk with brick-red, pendent fruit, the Hairbell, clinging to cliffs and ledges by the sea, the delicate Linnea, the brilliant-fruited Dwarf Cornel, the spring-time Violets, the summer Roses and the autumn Asters, the Blueberries and Wild Strawberries, the Raspberries and Blackberries, the Shad Bush and the Thorn, the Viburnum, most beauti-

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ful of northern woodland shrubs, the Rhodora, sung by Emerson, the Sumach and the Mountain Ash — there is no period the season through that lacks its special interest of flower or fruit.

In trees and forest growth Mount Desert Island represents the wide territory comprised in eastern and northern Maine, the Maritime Provinces, Labrador and Newfoundland. The forest of this region, best described as the Acadian Forest since it is in the old Acadian region that it finds its best expression, is the boreal extension of the ancient Appalachian forest of mingled coniferous and hardwood trees, ranging northward along the mountain folds from Tennessee and Georgia.

The noblest tree in the Acadian Forest is:

The White Pine, *Pinus strobus*, emblem of Maine, the Pine Tree State, and eastern representative of the great five-needled group which includes among other western species the giant Sugar Pine of the Pacific slope.

“The most beautiful Pine tree of eastern America, our sylvan scenery owes the peculiar charm which distinguishes it from all other parts of the world to the wide-spreading, dark-green crowns of the White Pine, raised on stately shafts above the level of the forest and breaking the monotony of its skyline . . . This most valuable timber tree of northeastern America, the White Pine, has played a conspicuous part in the material development of the United States and Canada. Great fleets of vessels and long railroads have been built to transport the lumber sawed from its mighty trunks; men have grown rich by destroying it, building cities to supply the needs of their traffic and seeing them languish as the forests disappeared. Fifty years ago the pineries of Maine and lower Canada, of northern New York, of Pennsylvania, Michigan, Wisconsin, and Minnesota contained stores of White Pine which were believed

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to be inexhaustible, but the best has already been cut and the great trees which were once the pride of the forest no longer exist.”

Silva of North America. Published in 1897.

“The White Pine has been seen six feet in diameter at the butt and two hundred and forty feet in height, and those over four feet through are frequent.”

WILLIAMSON. *History of the State of Maine*, published in 1832.

Three other species of pine grow in the Acadian forest:

The Red or Norway Pine, *Pinus resinosa*, a beautiful and stately tree with reddish bark and two long needles in a cluster, which obtained its name of Norway Pine from its resemblance to the Norwegian species, with which it was at first confused.

“*Pinus resinosa*, the Red Pine, is the only American representative of a peculiar Old World group of which *Pinus sylvestris*, the Scotch Pine, is the best known. In cultivation the Red Pine grows very rapidly and its hardiness, its picturesque habit, and its long dark-green leaves, make it the most desirable of the Pitch Pines which flourish in the northern states for the decoration of their parks.”

Silva of North America.

The Pitch Pine, *Pinus rigida*, which here, near to its northern limit, takes on a low, branching habit of singular, Japanese-like picturesqueness, growing, indifferent to wind and storm, in exposed positions along the coast and on the mountain heights where scarce another tree could stand. It has shorter leaves than the Red Pine, three in a cluster.

The Gray Pine, *Pinus Banksiana* — known also as the Jack Pine and the Labrador Pine — a boreal species which finds its southern coastal limit on Mount Desert Island,

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extending northward thence till, starved by cold, it dwarfs into a shrub. It has two short needles in a cluster, and tough, sessile cones which it retains indefinitely, the wood of the growing trunk frequently enclosing them undecayed. The seeds often are carried in these cones for many years, this, it may be, being a provision for re-seeding after forest fires, the cone opening when the fire has passed.

After the White Pine, the most characteristic and stately tree in the Acadian forest is:

The Hemlock, *Tsuga Canadensis*, which attains its greatest abundance, size and beauty in the Acadian region. Longfellow links it with the Pine in describing the forest of the opposite Nova Scotia shore in the opening line of *Evangeline*: "This is the forest primeval, the murmuring pines and the hemlocks." In majesty of trunk in age, grouped in the forest depths, and in grace of delicate and lightly carried foliage, the Hemlock stands supreme.

By far the most abundant evergreen in the Acadian forest, and next to the White Pine the most valuable commercially, is the Spruce, of which there are three species:

The White Spruce, *Picea glauca* — formerly called *Picea canadensis* — a beautiful tree with dense, blue-green foliage, which grows magnificently in the Mount Desert region, and westward to Alaska, but which needs the cool climate and short summers of the north to develop its full size and beauty, not prospering to the south of Portland. It retains permanently its lower limbs when growing in the open, and is the only evergreen tree on the coast whose foliage will withstand the ocean spray and whose roots will maintain their hold, growing vigorously, on a surf-cut bank till it is washed away.

The Red Spruce, *Picea rubens*, formerly called *Picea rubra*, with foliage of a warmer green than that of the White Spruce, with which it grows in close association in

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the Mount Desert region though ranging far beyond it to the south along the Alleghany ridges, to take part with the Balsam Fir and Yellow Birch in reproducing a strangely characteristic Acadian flora on the high mountain tops of western North Carolina, a survival doubtless from the Glacial Period.

"*Picea rubens*, the Red Spruce, is the principal timber spruce of the northeastern United States, and next to the White Pine the most valuable timber tree of the regions that it inhabits." *Silva of North America*, 1897.

"Spruce is a goodly tree of which they make Masts for Ships and Sail Yards. It is generally conceived by those who have skill in Building of Ships that here is absolutely the best trees in the World, many of them being three Fathom about and of great length."

JOSSELYN. *New England's Rarities Discovered*, 1672.

The Black Spruce, *Picea Mariana*, formerly called *Picea nigra*, a swamp-growing tree rare in the Mount Desert district but abundant northward.

"In the Labrador peninsula the Black Spruce is the most abundant tree, growing both in cold sphagnum swamps and on high hills covered with sands or with rocks or heavy glacial drift, usually in dense thickets, with long slender stems, but along the border of the treeless plains — where alone with the Larch, the Black Spruce holds the northern outpost of the forest — it grows in open glades, and its short trunks are clothed to the ground with branches."

Silva of North America.

One Fir only grows in the Acadian Forest:

The Balsam Fir, *Abies balsamea*, which can readily be distinguished from the resembling Spruces by its smooth, blistered bark and the way in which its needles are borne in

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flat, horizontal rows on the branchlets, and are silvery beneath, while those of the Spruces are disposed irregularly around the branchlets and are alike in color on all sides.

Another distinction, easily observed in its season, between the Firs and Spruces in all species is that the Fir trees carry their cones upright, like Christmas candles, closely bunched together near the tree top, while the Spruces carry theirs turned downward and scattered over top and branches. The Balsam Fir is a beautiful tree when young and grows rapidly, but ages soon. Its dead needles, heated by the sun, become pungently aromatic, and from its bark is derived Canada Balsam, employed for mounting objects to be examined under the microscope, it remaining constantly transparent and uncrystallized.

One conifer the Forest has that is not evergreen:

The Larch, *Larix americana*, known also by its Indian names of Tamarack and Hackmatack.

“Of the trees of the subarctic forest of America, *Larix americana* best supports the rigors of the boreal climate and at the extreme northern limits of the forest is still a little tree rising above its associate, the Black Spruce, which clings to the ground with nearly prostrate stems. . . . Usually an inhabitant of lands saturated with moisture, the American Larch when planted in good soil grows much more rapidly than in its native swamps, attaining a large size and more picturesque habit, and of all the Larch trees which have been tried in the northern states it best deserves attention as an ornament of parks and gardens.”

Silva of North America.

One other coniferous tree only grows in the Acadian Forest:

The Arbor Vitae, or Cedar, *Thuja occidentalis*, a mois-

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ture-loving tree belonging to the Cypress family, which grows commonly in swamps, together with the Larch or singly, to avoid the shade probably of faster-growing trees less tolerant than it of water rather than for the water's sake, for it climbs high upon the mountain sides at Mount Desert, clinging to the ledges, and is beautiful when growing wild in open, rocky pasture-lands or on the lawn in cultivation, forming broad pyramids of light green foliage. One of the first plants sent out to England, being mentioned in Gerard's Herbal, published in 1597, it has been long and widely cultivated as a hedge and ornamental tree on both sides of the Atlantic.

The hardwood trees of the Acadian Forest — its angiosperms: oaks, maples, poplars, and the like — form part of the great Appalachian angiospermous group, which they continue northward; they have a common history and a common origin.

The Appalachian forest is the oldest hardwood forest in the world of which the rocks yield record. Fossil impressions of branches, leaves and fruits of trees that grew where it now stands and are so like the modern type as to prove indubitably their ancestral relationship, have been found embedded in Potomac clays dating back to the middle of the Cretaceous Period: they appear again, in clearly defined species now and strangely modern guise, in deposits of the Raritan formation extending along the Atlantic coastal plain from New York to Maryland; in Greenland and Spitzbergen; on the coast of Portugal.

The trees these fossils tell of come from some common home, some single distribution center, identical species occurring in widely separate localities. Where that home was and how it chanced that the plants continued their development in it during the vast period the high degree of differentiation they attained implies before they migrated,

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remains a mystery; but everything at present points toward eastern North America and the great, massed land areas then probably connected with it in the north as the land of origin.

The sudden appearance of these plants among those of the older flora and their swift invasion of the world they were henceforth to dominate and make habitable for man is one of the most dramatic events in world history. Had some untimely glacial epoch intervened prior to the plants migration, the whole course of life development on earth would have been different; man impossible. For not only the forest trees of hardwood type that formed man's early home and evolved him physically, but the grains, the grasses and the browse on which all grazing animals depend; the fruits and grains and vegetables man eats himself and that sustained him in his wilder past; the birds — wild and domesticated — that feed on the seeds and buds and parasitic insects of angiospermous plants, all with slight exception belong to or depend on that great group which makes its first appearance in those ancient, rock-recorded trees.

Among existing genera whose plants in ancestral species bloomed and leaved and fruited in that far-off period amid strange scenes and animals, with man unheralded, are: maples, oaks, willows, poplars of many species, thorns, dogwoods, hollies, walnuts, tulip trees and magnolias of many species, sumachs, plane trees, sassafras trees, viburnums, birch trees, beech trees, gum trees, aralias, witch hazels, myrtles, ivies, fig trees of many species, celastruses, of which the Bitter Sweet is the familiar type, amelanchiers, of which the Shad Bush is the type, laurels of many species, kalmia in one discovered form, hickories, and elms — a wonderful list to have come down to us from a time so distant, and one that tells us what — with associated pines

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and sequoias, ginkgos, taxodiums, and other relicts of the earlier period — the forest of the Acadian region and its now flooded coastal plain must at that time have been, and have long continued probably till the increasing cold and ice-invasions of the Pleistocene Period, from the most recent of which we are but now recovering, destroyed all trace and form of vegetation to the Hudson's mouth. As it receded, vegetation — what genera and species had survived — trekked slowly north again. This, geologically speaking, is recent history, an affair of yesterday, and the northward return movement of these Flowering Plants, woody and herbaceous, is probably not yet completed but still going on.

These are the trees of the hardwood angiospermous type now growing in the Acadian Forest and the vicinity of Mount Desert:

The Red Oak, *Quercus borealis*, — formerly called *Quercus rubra* — the type of an important group and its finest member, rapid in growth, valuable in wood, and beautiful in autumnal color.

The Beech, *Fagus americana*, one of the most beautiful of forest trees and abundant throughout the Acadian Forest, where its nuts are eagerly sought by deer and bear, and by wild pigeons formerly.

The Canoe or Paper Birch, or White Birch locally, *Betula papyrifera*, a noble tree with deep-green, handsome foliage, changing to golden yellow in the fall, and pure white trunk from which the Indians obtained the bark of which they made their bark canoes, unobtainable to the southward, where dug-outs — hollowed out by fire — were used instead.

The Yellow Birch, *Betula lutea*, the grandest deciduous tree in the Acadian Forest. It has a bark of golden sheen when young and foliage that recalls the Beech. Growing

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in the open it assumes a many-stemmed and branching form, though single-trunked at base, but in the forest it may attain a height of ninety to one hundred feet and a diameter of a yard or more.

The Gray Birch, *Betula populifolia*, a slender tree of rapid growth but ageing fast, whose leaves, smaller than those of the Canoe Birch and of a less rich green, ripple like those of the Aspen in the slightest wind — whence its specific name, *populifolia* — poplar-leaved. With light seeds, carried far and readily by the wind, it is usually the first tree to spring up over a fire-devastated area, and makes an admirable nurse for the Spruce and Fir which seed among it and replace it ultimately.

The Red Maple, *Acer rubrum*, one of the most beautiful trees of the American forest, lightening the springtime landscape with its red flowers and fruit illuminated by the sun, furnishing a refreshing shade in summer, and becoming in the early fall a blaze of flame-like color.

The Sugar Maple, *Acer saccharum*; the grandest of the maple trees, which does not attain, however, the size and beauty in the coastal region that it does in the interior.

The Moosewood or Striped Maple, *Acer pennsylvanicum*, a small tree growing naturally in the forest shade, with straight, longitudinally striped stems and leaves exceptionally large, whose young shoots, rich in sugar, are a favorite browse of Moose in winter, whence its Moosewood name.

The Mountain Maple, *Acer spicatum*, a many-stemmed and shrub-like tree that springs up thickly on the lower slopes of mountains from a wealth of annually borne seed.

The White Ash, *Fraxinus americana*; a straight-stemmed, splendid tree, the finest of its genus.

“The rapid growth of the White Ash, its freedom from disease and the attacks of insects, its dense crown of large

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dark-green leaves, its clean gray trunk, and the beauty of its foliage in autumn make the White Ash, in spite of its late leafage, one of the best ornamental trees of the American forest.”
Silva of North America.

The Black Ash, *Fraxinus nigra*, a swamp-growing species.

The Aspen, *Populus tremuloides*, a rapidly growing tree whose leaves, lightly hung on slender, laterally flattened stems or petioles, rustle and quiver in the slightest breeze.

“A graceful tree with slender, pendulous branches, shimmering leaves, and pale bark, the Aspen enlivens the spruce forest of the north and marks steep mountain slopes with broad bands of color, light-green during summer and in autumn glowing like gold against backgrounds of dark cliffs and stunted pines.” *Silva of North America.*

The Large-toothed Aspen, *Populus grandidentata*, a kindred tree with deeply serrate leaves, densely pubescent and silvery white upon the under side in spring, when it seems to blossom on the mountain-sides, and golden yellow, in companionship with the White Birch, in fall.

The Balsam Poplar, or Balm of Gilead, *Populus balsamifera*, a boreal species rare in the wild state near Mount Desert but growing freely north to Hudson's Bay. It has exceedingly resinous buds and was frequently planted by the early settlers near their homes, together with a bed of Tansy, for medicinal purposes. It is a tree of extraordinary vitality and vigor, but does not endure hot summers.

“The Balsam Poplar, which is the largest of the subarctic trees of America, is the most conspicuous feature of vegetation over areas thousands of square miles in extent, and its great size, its stately trunk, and the brilliancy of its leaves, displaying in turn as the wind plays among its

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branches their dark green upper and their rusty lower surfaces, often make it a splendid object.”

Silva of North America.

Besides these trees, the Black Birch or Cherry Birch, *Betula lenta*; the Silver Maple, *Acer saccharinum*; the American Elm, *Ulmus americana*; the Butternut, *Juglans cinerea*; and the Bur oak, *Quercus macrocarpa*, grow variously in the Acadian region but — with the rare exception of the Cherry Birch — not natively at Mount Desert. The Hop Hornbeam or Ironwood, *Ostrya virginiana*, grows natively on the Island; the American Hornbeam or Blue Beech, *Carpinus caroliniana*, grows in its vicinity, but both are rare.

Thorn trees are abundant, and beautiful in flower and fruit, but belong rather — with the Shad Bush, the Wild Cherry, and the Mountain Ash — among the Flowering Shrubs than Forest Trees, lightening the forest outskirts with their beauty.