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GARDEN AND FOREST

A JOURNAL OF

HORTICULTURE, LANDSCAPE ART AND FORESTRY

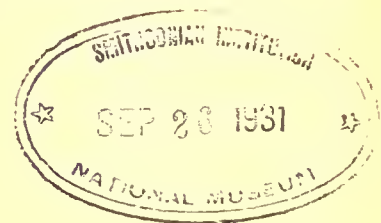
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Patton's Spruce.

BY the increasing number of travelers who explore the high mountains of the Pacific states, which are its only home, the lovely Mountain Hemlock is now usually known as Patton's Spruce. Perhaps best considered a Hemlock, this tree differs from other Hemlocks in its long, narrow cones and in its more acute leaves usually keeled on the upper surface, and its bilobed pollen grains; and in general appearance it is one of the most distinct and beautiful of the North American conifers.

Tsuga Pattoniana, as botanists call this tree, was discovered only about forty-five years ago near Mount Baker, in northern Washington, by the Scotch collector Jeffrey, and was named out of compliment to George Patton, a Scotch lawyer, who was given to the cultivation of exotic trees, and was one of the subscribers to the fund which enabled Jeffrey to explore the forests of north-western America.

Patton's Spruce is now known to range from Alaska, where it grows at the level of the sea, southward along the mountain ranges of British Columbia, west of the continental divide, the two slopes of the Cascade Mountains of Washington and Oregon and the California Sierra Nevada, where probably on the upper waters of some of the tributaries of King's River it finds its most southern home. It is a tree of high altitudes, and, except at the extreme north, it is found only near the timber-line, forming with Pinus albicaulis and Abies lasiocarpa extensive forests.

Patton's Spruce is a tree of marvelous grace, with drooping branches clothed with thickly clustered leaves, abundant elongated narrow cones, which hang on slender spray-like branchlets, and on some individuals are bright purple, and light yellow on others in the same grove. The foliage, too, differs in color, being on some trees dark green and on others light blue-green, a peculiarity which has led to some confusion of nomenclature, the blue-leaf form often appearing in gardens as Tsuga (or Abies) Hookeriana.

Patton's Spruce grows in the greatest perfection on the slopes below Crater Lake, in the Cascade Mountains of southern Oregon, forming here extensive and nearly pure forests, in which individual trees one hundred feet high, with stout massive stems five or six feet in diameter, are

abundant. Such a growth is probably not exceptional, and this tree is abundant and conspicuous at the timber-line of Mount Hood, Mount Ranier, and on the Selkirk and other mountains of British Columbia. On Mount Ranier, with Abies amabilis and Abies lasiocarpa, it forms a large part of the forest growth, growing above the banks of glaciers in great luxuriance. Some idea of the upper forest-belt on Ranier can be obtained from our illustrations in this issue; that on page 6 displays the snow-covered summit rising 8,000 feet above the timber-line, with scattered trees of Patton's Spruce on the slope in the foreground, and in the illustration on page 7 the trunks of this tree are displayed in more detail.

In Washington and Oregon Patton's Spruce grows at elevations of from 5,000 to 6,000 feet above the sea-level, but farther south the timber-line is carried higher, and John Muir, who describes this tree in his *Mountains of California* as the "most singularly beautiful of all the California conifers," found it growing on the Sierras up to 10,000 feet altitude; and on the edge of Lake Hollow, at an elevation of 9,200 feet, measured a trunk nineteen feet seven inches in circumference at four feet above the ground. "No other of our alpine conifers," he tells us, "so finely veils its strength. Its delicate branches yield to the mountain's gentlest breeze, yet it is strong to meet the wildest onsets of the gale—strong not in resistance, but in compliance, bowing snow-laden to the ground, gracefully accepting burial, month after month, in the darkness beneath the heavy mantle of winter. Every tree-lover is sure to regard it with special admiration. Apathetic miners, ever seeking only gain or gold, stop to gaze on first meeting it, and mutter to themselves 'That is a mighty pretty tree.' The deer love to lie down beneath its spreading branches; bright streams from the snow that is always near ripple through its groves, and Bryanthus spreads precious carpets in its shade. But the best words only hint its charms."

Introduced into Scotch plantations by its discoverer, Patton's Spruce has shown that it is fairly adaptable to altered climatic conditions, and it may now be seen in many European collections, and although it has not yet had sufficient time to attain maturity in cultivation, it is an ornamental tree of much promise in several European countries. Patton's Spruce, moreover, is one of the comparatively small number of the conifers of the Pacific states which thrive in the east, and although, like most alpine conifers, it grows extremely slowly at the sea-level, it has for several years withstood without injury the changeable winters and dry summers of the New England climate.

The Planting of Shrubberies.

IN furnishing small areas about modest country and suburban houses, and, indeed, for a great many other purposes in larger and more pretentious grounds, public and private, deciduous flowering shrubs are so effective in this climate that every one who wishes to plant intelligently should be familiar with their habits and with the proper way of disposing them. Of course, no place except the very smallest can dispense with trees, and in many places low-growing evergreens, especially the broad-leaved evergreens, can also be used with profit. But when we consider the beauty and variety of their flowers and foliage and fruit, and the mist of soft color which hovers about their twigs in winter, deciduous shrubs are, beyond all question, the most important element in planting small grounds. This does not mean that all shrub plantations are satisfactory, for individual plants can be dotted about a lawn in a way that is utterly meaningless. They can be used, however, so as to make a picture which has individuality and character, and in which every detail contributes distinctly to the general impression and helps to bring it out in a clear and well-defined way.

This is an art which requires study and practice, and a bulletin lately issued by Professor Bailey, of the Cornell

nearly a hundred feet. On the opposite sides of the chasm the wall of rock is broken, and from the crevices are seen hanging in rich profusion such Ferns as Woodsias, Polypodium and Aspidiums, far beyond the reach of human hands. Here and there is some little dell, through which bubbles a miniature stream, its rocky banks covered with Mosses and Lichens. The largest of the falls has been named the Joe Howe Falls; it is about thirty or forty feet in height. On the bluff near by, it is proposed to erect a monument to the distinguished Nova Scotian after whom it is named; but it is to be hoped that the projectors will change their minds and either erect the monument near the entrance to the park or in the city. Any work of ornamentation in such a picturesque place would certainly be a blot. On the plateau, 200 feet above the ravine, a carriage-road extends, encircling the outer edge of the park, and numberless bypaths extend from this to points of vantage on the crags overlooking waterfalls, where on a bright October afternoon the visitor looks down on a scene of marvelous beauty, the gorgeous tints of Maples, Viburnums and Heaths darkened now by the sombre hue of evergreens, now lightened by the foam of waterfalls.

Mount Pleasant Park, at St. John, New Brunswick, situated near the city, has not yet been formally opened. It consists of 240 acres of land, some of which has been given by liberal citizens, some acquired by purchase, and some will come by expropriation. During the past two years the members of the Horticultural Association have endeavored in every possible way to interest citizens in the park scheme by planting the squares of the city with trees and flowers, and by holding exhibitions. When they have secured enough land for the park and have paid for it, the association proposes to hand it over to the city as a gift. It is hoped that the liberality and public spirit of these citizens will meet with a generous response on the part of the city government. The park site is a broken and picturesque plateau overlooking the city, intersected with ravines. A lake lies at its western extremity, from the eastern end of which a small stream finds its way over a succession of perpendicular rocks to the meadow below—forming a series of beautiful cascades about eighty feet in height. The most of the park lands so far acquired consist mainly of rocky hills and mounds covered with a growth of small shrubs, with stunted Spruces, Firs, White Birches, Maples and Cedars. The Cedars are shapely and beautiful, and if carefully handled will become one of the most beautiful ornaments of the park, the limestone formation being well adapted for their symmetrical growth. A roadway has been constructed around the lake, and it is hoped that the services of a competent landscape-gardener may be secured before anything more is undertaken. It would be a pity to go on blindly without a completed design, and a design which respects the peculiar charm of the place and which preserves and enhances it. A special feature of the park at this season is the native shrubbery which covers the rocks, and which yields the most brilliant and varied colors—stunted Vacciniums with their purple hues covering the rocks in every direction; several species of Viburnum, with their white and blue fruits in pleasing contrast, *Kalmia angustifolia*, *Rhododendron Rhodora*, *Sedum latifolium*, *Pyrus nigra*, and many others.

St. John, N. E.

G. U. Hay.

Plant Notes.

The Lilies of our Pacific Coast.

THE Pacific coast of the United States is wonderfully rich in members of the Lily family. With nearly forty *Calochorti*, over twenty *Brodiaëas* and thirty *Alliums*, nine *Fritillarias* and ten *Erythroniums*, as many or more *Liliums*, and fifty other species distributed among twenty-five genera, the *Liliaceæ* of the Pacific slope include a grand total of over one hundred and seventy species, in a vast and comparatively unknown region, the exploration of which annually adds new species or proves the existence

of forms described by the earlier botanists and since lost sight of. I doubt if there is any other region in the world where the Lily family is so rich and varied.

The number of *Liliums* or true Lilies on the Coast varies according to the nomenclature followed. *The Botany of California*, published in 1880, mentions eight species and one variety. Mr. Baker more correctly, as I think, distributes the same material into fifteen species and varieties in his synopsis of the genus. These species can be divided into several groups according to their natural affinities. *Lilium Washingtonianum* and its varieties, with the nearly related *L. rubescens*, will form the first of these groups, and into the second will naturally fall *L. Columbianum*, *L. Humboldtii* and its varieties, and *L. Bloomerianum*, which is also known as *L. Humboldtii*, var. *ocellatum*. *L. Bolanderi*, too, shares in the solid ovoid bulb and leaf character of this group, although its flowers differ in form.

A third group, and a very large one it is, will contain the western relatives of *Lilium superbum*, large bog Lilies with rhizomatous roots and revolute flowers. These are *L. pardalinum*, *L. Roezlii* and *L. Warei*, with the innumerable forms of *L. pardalinum*, some of which, as *L. Californicum*, *L. Bourgæi* and *L. puberulum*, are often treated as species. This wonderfully varied group is connected by a close chain of intermediate forms, possibly crosses, with the next group, which consists of the western relatives of *L. Canadense*. In this group of small-flowered bog Lilies, *L. parvum* is nearly as various in its forms as is *L. pardalinum*, but *L. maritimum* is, as far as my observation goes, strictly monotypic. The type of *L. parvum* and *L. maritimum* have funnel-formed flowers.

Lilium Parryii is closely related to the *Pardalinum* group, differing only in having trumpet-shaped flowers. In growth it can hardly be distinguished from *L. pardalinum*.

Of these eleven species, *Lilium pardalinum* is most widely distributed, being scattered from central California to British Columbia, and eastwardly to the shores of Lake Winnipeg. *L. Washingtonianum* inhabits a long and narrow belt in the main Sierra Nevada range and in the Cascades to British America. *L. Parryii* is found in Arizona as well as in its original location in southern California, and *L. Columbianum* is found to extend far east of the Cascades in the Columbia River valley, but with these exceptions these Lilies belong to the mountainous regions of the Pacific Coast proper in the Sierra Nevada and Coast ranges. I have already written of *L. Washingtonianum* and its varieties (vol. ix., p. 448), and of *L. rubescens* (vol. ix., p. 493). In an early issue I hope to write of *L. Humboldtii* and its allies.

Ukiah, Calif.

Carl Purdy.

Cultural Department.

Notes on Cypripediums.

AT no period of the year is a good collection of *Cypripediums* entirely flowerless, but during the winter months when the temperature of the greenhouse is congenial they flower bountifully and their prolonged period of bloom gives opportunities for study and close acquaintance. It has been urged by some that Orchids out of flower are the reverse of ornamental, and this is true of some genera. *Cypripediums*, however, are rich in luxuriant leaf-growth, and not a few of them are worthy of cultivation for this feature alone, the deep green leaves being exquisitely marbled and variegated. Their growing popularity is attested by the fact that some of the more common species, like *C. insigne*, furnish cut flowers by the thousand for the New York market. To the amateur a little house of *Cypripediums* will give hours of infinite pleasure in winter, and hundreds of plants can be accommodated in a modest structure. The original wild species from many lands would of themselves furnish a rich store, but the hybrids of the last decade alone have here given us additional forms and colors in almost infinite variety. In fact, the hybrids are the majority among *Cypripediums*, and there is an endless fund of delight in comparing them, observing traits so plainly inherited that the parentage of many plants can be absolutely vouched for.

Cypripedium insigne is the type of quite an extensive family,

of which many members show marked improvements on the original. It is a native of Nepal, introduced early in the century, and now has over forty named varieties. One of the finest of these forms which we now have in flower is *C. insigne* Colsonianum, sent out from the Short Hills nursery. The very large dorsal sepal is the feature of the flower, the breadth and purity of its white margin being especially noticeable; in fact, nearly one-half of it is of this color, the base having the characteristic apple-green tint with prominent brown spots, the petals gracefully undulated, with the abundant spots disposed in a regular horizontal alignment. Of quite a different type is the dwarf variety *Eyermannianum*. Its dorsal sepal is of a transparent greenish-yellow tipped with white, the petals and pouch also pale, unspotted, faintly lined, but the staminode is of a conspicuously rich yellow hue. *C. nitens*, a hybrid between parents *C. insigne* Maulei and *C. villosum*, is handsome and blooms freely. Its bold chocolate-spotted dorsal sepal shows the blood of *C. Maulei*; light brownish yellow petals, glistening like those of its other parent, are faintly lined with brown, infolding toward the polished light brown lip. Forms of the well-known hybrid *C. Leeanum* are now numerous and most interesting. The characteristics of *C. Spicerianum* predominates in all these forms so much that there is little apparent trace of *C. insigne* Maulei, or the other parent *C. Maulei*. The best of the several forms we have is that known as *Masureelianum*, which was also sent out from the Short Hills nursery, and now has several fine flowers open. Its dorsal sepal is very large and of elegant curvature, recurving at the base till the edges overlap, and looking at the dorsal sepal from behind it is in shape a perfect miniature of the Arum Lily, in pure white. In front it is marked with broken lines and dots of light purple, but there is a broad margin of purest white. The *insigne* influence is apparent in the petals which, gracefully undulated along their edges, are brownish yellow, spotted with a darker brown pouch of a similar hue, but its inner surface pitted with innumerable tiny red dots. Other good forms of *C. Leeanum* in flower are *Giganteum*, *Burfordense* and *Superbum*, all sufficiently distinct to justify their varietal names, while *Pulchellum* is quite a little gem with a neat flower, the dorsal sepal much contracted, green tinged and lightly spotted, the petals narrow and decidedly drooping, the pouch short, with a widely expanded aperture, while the staminode differs in color from the previous named forms and attracts notice in consequence by reason of its exquisite mauve color, the yellow protuberance in its centre standing out in rich contrast.

Cypripedium macropterum, a Veitelian production, is a hybrid between *C. Lowi* and *C. superbium*. We have a noble scape of this, carrying two fine flowers and a bud yet to expand. The open flowers with their long horizontally poised petals measure nearly six inches across. The dorsal sepal is of a quaint shade of gray-green, lined and suffused with brown at its base. The petals are long, making a flower of graceful outline, as they depend somewhat at their tips, describing quite a semicircle. They are somewhat narrow at the base of attachment, but broaden toward their extremities, the broader half being of a light glistening, uniform mauve-purple, while the anterior portions are heavily dotted with shining black spots. The pouch is light brown. *C. Harrisianum* is as well adapted to grow in quantity for cutting as *C. insigne*, while some of its forms are highly conspicuous, as, for example, *Superbum*, a truly superb form in every respect. This has a very large dorsal sepal of exquisite coloring, a kind of mahogany-red in vertical lines running up the sepal over a lighter shade of purple-red diffused through the sepal, save a well-defined narrow margin of white. The petals are a rich purple-red in the upper half, but the lower portions much paler-tinted and faintly lined with green. The lip is prominent, of a claret-purple shading toward green at its tip. The variety *Pitcherianum* shows distinctive traits compared with its immediate relative.

Cypripedium Lawrenceanum, a Bornean species discovered by Burbidge in 1878, is a noble *Cypripedium*, as beautiful in leaf as in flower. It is represented in our collection by a very fine form, indeed, named *Giganteum*. Though a small plant, it carries an immense flower on a stout stem over one foot high. Its dorsal sepal is a study of rich coloring. Mainly white, it shades to light green at the base, while broad vertical lines of claret-purple of varying length streak the sepal, and their color is faintly diffused through the white body-ground. The petals are light green, ciliated along their edges, while half a dozen black spots are distributed along the upper and lower borders of both petals. The pouch is large, of a light brownish green, pitted inside with dark purple dots. *C. Niobe* Shorthillense flowers with great freedom, a plant in a three-inch pot carrying six perfect flowers. The influence of one of its parents, *C. Spicerianum*, is most marked in the dorsal sepal,

which is white, heavily lined and suffused with purple, the base of the sepal a brownish green. The petals have the graceful undulations and show characteristics of its other parent, *C. Fairreanum*. They are lined and suffused with chocolate on a greenish yellow ground, the short pouch glistening as though polished, being of the same tone of color. Another dainty gem of *Spicerianum* parentage is *C. Hebe*, which was raised at Short Hills; a tiny plant has two perfect flowers. It has a broad dorsal sepal, mainly white, but with a distinct band of purple right down the centre, and a few spots and suffusions of the same tint on the white ground color. It has short, narrow, wavy petals spotted with brown on greenish yellow, a short, broad pouch with infolding lobes, externally light chocolate, internally profusely red-spotted. *C. Arthurianum* is a lovely hybrid with *C. insigne* and *C. Fairreanum* for its parents. It is a dwarf grower, neat and free in flowering, its dorsal sepal bright green, tipped with pure white and penciled with brown in broken lines. Its wavy, drooping petals impart to the flower a graceful expression. They are lined and spotted with brown, the pouch also similarly tinted. Other *Cypripediums* of interest also in flower are *C. concinnum* transparens, quaintly colored in rosy purple and white, with a peculiar transparent lustre; *C. regale*, of marked distinctness, noteworthy for its clean-cut, regular form, its dorsal sepal tipped with white and streaked with dark olive-green, petals and pouch colored in a pretty harmony of brown and green; *C. luridum* in two forms; *C. Mrs. Edward Warren Hook*, with a polished purple-red flower of bright and attractive coloring, and *C. Tonso-villosum*, a comparatively colorless hybrid with fine flowers in subdued tones of brown, green and yellow.

Madison, N. J.

A. Herrington.

Nepenthes.

PITCHER-PLANTS are for the most part more interesting than showy. The flowers being inconspicuous, their chief beauty is in what is commonly called the pitchers. The genus comprises a considerable number of species and varieties, and the form or color of the pitchers constitutes the chief distinction, though they vary considerably in size, texture of leaf and vigor of growth. They are generally considered plants of easy culture, but this greatly depends upon the facilities. It is almost useless to attempt to grow them in an unsuitable house or in one in which the proper atmospheric conditions cannot be maintained. They require abundant atmospheric moisture at all times, but fresh air is also necessary. I have seen them grown in a house with a northern elevation, but one with a southern elevation is preferable, though, of course, it will require slightly more shade. This shading should in no case be overdone, for, in our experience, they have stood a greater amount of light than is usually allowed. It is only necessary to break off the strong sun rays, and for this purpose light muslin or cheesecloth is useful. The usual means of propagation is by cuttings. Several methods of striking are adopted, but the simplest and most convenient is to firmly insert the cuttings made from well-ripened one-year growths, singly, in small pots filled with sharp clean sand. These are plunged in a propagating-case where a good bottom-heat can be maintained, and kept liberally sprinkled with water heated to the same temperature as that of the case. We make the cuttings from single joints, with leaf attached, cutting from one to two inches below and one inch above the leaf. The longest of the leaves are sometimes shortened to save space, but otherwise this is not necessary. After striking, the first shift is made into three-inch pots; the principal material used is fibrous peat, with a surface covering of sphagnum-moss, and the whole should be firmly packed in the pots or baskets. We prefer to plant in baskets after the plants have attained sufficient size. The moss on the surface helps to retain the moisture, for lack of which they should never be allowed to suffer. If plenty of water is not given, the pitchers will become shriveled at an early stage of their formation, and the leaves will lose their bright green color and assume a reddish tint. During the summer months syringing will be required three or four times a day. In winter less syringing will answer, but hard firing will necessitate the frequent application of water to the pathways and brick-work of the house to guard against a drying atmosphere. This syringing and damping also serves to keep down red spider, the most dreaded insect enemy. We try to maintain a night temperature of about sixty-five degrees during the winter months, allowing a rise of about ten degrees by day. For the summer months, of course, it is impossible to lay down a hard and fast rule. As *Nepenthes* grow rapidly we find it desirable to shorten back or cut them down every season. They break very readily. It allowed to run they incline to produce flowers