Herbaceous Pæonies.

THE flowering season just over has been one of the best I remember for Pæonies. A large bed of named varieties was a fine sight for the two or three weeks during which it was at its best. These plants revel in well manured soil, and, although they are impatient of removal, the manure may be lightly dug in without causing them any injury. If it is wished to move or divide any established plants, it should be borne in mind that they will not flower satisfactorily the first year after removal, but with generous treatment this will be the extent of the loss. Care should be taken in the selection of sorts, only the most robust being suitable for growing in prominent positions. There are some kinds which appear to have a tendency to develop a great number of small crowns that are useless for flowering, and these are very disappointing, for it seems almost impossible to induce them to make really satisfactory growth, and, at most, one or two flowers on a plant are all they will produce. All such kinds are ineffective in a flower-garden. The old *P. officinalis* is very useful for planting in rough places amongst the Grass or as a fringe to the shrubbery, for it does remarkably well when let alone after it gets established. None of the named kinds I have seen can compare with it for this sort of work.

I append a list, selected from about thirty named sorts, which have been exceptionally good here the past season:

Candidissima.—Pure white guard-petals, pale primrose centre.

Carnea grandiflora.—Delicate blush, changing to pure white, incurved flower, very strong and good.

Charles Binder.—Deep rose, very full flower, scented.

Constance Devred.—Deep carmine, large flowers.

Dr. Calot.—Deep rose guard-petals, centre salmon.

Festiva maxima.—Pure white, incurved, stained carmine on centre petals, strong grower, magnificent.

Isabella Karlitzky.—Carmine-rose, full centre, very fine, scented.

Louis van Houtte.—Bright, purple-lake, strong grower, very large flowers, Hawthorn scented.

Marie Dhour.—Pale flesh color, full centre, dwarf, fine and free, scented.

Mme. Muyssaert.—Bright rose, light centre.

Mme. Jules Calot.—Bright rose, chamois-yellow centre, scented.

Paul Rubourg.—Rose, very double, late, strong and good.

Rosamond.—Rose, incurved, strong grower, very fine flower, scented.

Rubra triumphans.—Deep crimson, incurved, strong grower.

Whitleyi.—Single, pure white, large ball of golden anthers, dwarf, free, and the earliest of the section.

J. C. Tallack, in *The Garden.*

Disa tripetaloides is a beautiful little species which has lately attracted much attention and even admiration from members of the Orchid-loving community, and it is probable that it will soon become tolerably well known, for it has features which will readily recommend it, viz.: the ease with which it may be grown, the length of time its flowers remain in perfection, and their quiet and charming character—so different from that of the Grandiflora section. Flowering specimens have been exhibited during May and June in London. The leaves are lanceolate-acute, deep glossy green, somewhat fleshy in texture, three to four inches long and about half an inch broad in the widest portion. They are clustered at the base, but pass up the scape, which springs from the centre alternately, and change into green bracts. The erect scape is from nine inches to a foot high, and bears as many as twenty to thirty flowers, each of which is about three-quarters of an inch across, and of a beautifully soft, very pale lilac, handsomely speckled with deep rose. The upper sepal reminds one of a monk's cowl with a short, conical spur at the back. The lateral sepals are, in comparison, much larger, elliptic-oblong, while the small falcate petals and linear lip are within the precincts of the upper sepal and require close inspection to make them distinguishable.

This species, although now brought prominently before the public, is by no means new, having, according to Mr. N. E. Brown, of the Kew Herbarium, been discovered over a hundred years ago in South Africa by the traveler Thunberg, and named *Orchis tripetaloides* by the younger Linnæus. Thunberg afterward confused it with his own *D. excelsa*, and Dr. Lindley thought it to be *D. venosa* of Swartz, a plant whose identity has been mixed up with *D. racemosa*. To make matters clear Mr. Brown therefore retained the specific name given by Linnæus the younger, and re-named it *Disa tripetaloides*.

Those who are in the habit of looking at every Orchid as requiring "heat and moisture" will perhaps be agreeably surprised to learn that the subject of this note is a cool-growing and even hardy species. Mr. James O'Brien, of Harrow-on-the-Hill, to whom its re-introduction to cultivation is due, has grown his plants in pans in a cold frame, where they have freely flowered—some of them having even been subjected to frost. It is evident from these facts that *Disa tripetaloides* should grow well in a cool house, without requiring so much attention as some of its larger flowered congeners.

London. *John Weathers.*

Kniphofia (Tritoma) Saundersii.—One of the most pleasing and brightest things in the garden lately has been this beautiful Torch Flower. With its deep green, angular, rush-like foliage, and massive stems surmounted by the long spike of brilliant flowers, this is one of the most noble of plants. A well grown clump would be an attraction in the best of gardens. The flowers of this variety are a very pleasing orange-red, shading into orange. They are individually of good size, the spike being a foot or more long. Unfortunately, the plant is not entirely hardy here, needing careful protection from frost and wet, but well worth any amount of trouble.

Chrysanthemum maximum.—A trade circular just received, in which this is included as a choice perennial, leads me to say that it is a weed, or, in other words, a plant not worth a place in the garden. For three years I have been trying it without discovering other merits than its neat, vigorous habit. The flowers, under ordinary cultivation, are little larger than those of a well grown field Daisy, but perhaps if well fertilized they might be half an inch broader. The white Daisies are beautiful in the meadows, but, with their present abundance, it does not seem worth while even to give a slightly better variety room in the garden. Fortunately, *C. maximum* does not seem as hardy as the common White Weed. Some few years ago some seed from Vilmorin produced flowers with a tendency to doubling, and I notice a similar variety offered as *C. semi-duplex*. It is perhaps unnecessary to say that such flowers are abominations. If White Daisies of good size are desired early in the year, it would seem that the single Hybrid Pyrethrums are altogether the most useful and handsomest, both in flower and foliage. In a good strain of mixed seed some fine white ones will usually be found as well as the ordinary reds.

Elizabeth, N. J. *G.*

Plant Notes.

Papaver Californicum.

THIS true Poppy, the only one indigenous to California, was discovered in 1886 in the Santa Inez Mountains by Mr. John Spence, of Santa Barbara. It was described by Dr. Asa Gray in the *Proceedings of the American Academy of Arts and Sciences*, vol. xxii., pp. 313–314, thus being one of the last California flowers to receive a name at the hands of that illustrious botanist. Not only is it one of the latest discoveries, but it justly ranks among the handsomest of the annuals of the Pacific coast.

It is rarely found except on ground which has been burnt over, Mr. Spence first finding it far away from any cultivated fields at an elevation of 1,500 to 2,000 feet, on ground which had been covered principally with Manzanita bushes, but had been burned over the year before. Probably for this reason, and from its close resemblance in appearance to *Meconopsis heterophylla*, a less showy plant, but with flowers almost identical in size and coloring, it owes its escape from previous discovery.

As Dr. Gray suspected, this is not a local species, but is apparently widely distributed in southern California, having recently been collected by several botanists in widely separated localities, but everywhere under similar conditions as first found—on tracts of burnt brush-lands at from one to two thousand feet elevation. This spring I observed it in great abundance back of San Diego, near Potrero, and also between the Cajon and Santa Maria valleys, on hill-sides burned over by forest or brush fires last fall. Although I have traversed both sections repeatedly during the past ten years this richly colored flower had never been seen before these fires had denuded the land.

It forms a fine, bushy plant about a foot in height and bears a profusion of large, showy flowers of an average of two inches in diameter. The color of the large, delicate petals is a bright, saturn red to orange chrome, with a centre of a delicate sulphur yellow. In cultivation it is said to make a fine pot-plant, and if it improves as most of our wild flowers do under the attention of horticulturists, it will prove a most desirable addition to American gardens.

Associated with it is usually found *Phacelia Orcuttiana*, another so-called "fire weed" which is likely to prove a welcome acquisition to the garden on account of its masses of white flowers with conspicuous yellow centres. This Phacelia grows into a tall, stately plant, branching freely from the base.

It is an interesting problem why the seeds of these handsome plants should lie dormant so many years in the soil, awaiting the—to them—life-saving, destructive fire. After once starting into existence the seed does not seem to require to pass through the ordeal of fire before growing, for the second year after a fire they appear in greater abundance than the first. Gradually, however, as other plants get re-established on the ground these become fewer and fewer, until other vegetation overcomes them, and their seeds again lie dormant in the soil awaiting another deluge of flame.

San Diego, Cal. *C. R. Orcutt.*

CLEMATIS MONTANA.—A charming picture of a porch covered with this climber, in a recent issue of *The Garden*, of London, reminds us that the plant, although very rarely seen in gardens in this country, is perfectly hardy here, and that it is one of the very best of the early-blooming vines. Splendid shoots wreathed with the clusters of large white flowers were shown a month ago at one of the weekly exhibitions of the Massachusetts Horticultural Society by Mr. Joseph Clark, gardener of Henry L. Higginson, of Manchester, Massachusetts. *Clematis montana* is a native of Nepaul, whence it was introduced into English gardens as long ago as 1831. It is a rampant grower, producing, if the plant is severely pruned immediately after it has done flowering, shoots sometimes six or eight feet long, which flower the following year from end to end. As the writer in *The Garden* says, "its early blooming character, fitness for all ordinary soils, and complete hardiness, save in very cold spots, have raised it to the position it holds in the garden. It must be a poor place that has not rambling over a veranda, trellis, arch or wall *Clematis montana*." The specimen forming the subject of *The Garden* illustration has been planted for over thirty years in its present position, blooming freely every year, and covering the whole front of a house. It is planted in a border close to the wall and obtains little surface water. It is cut back once or twice a year.

The Forest.

The Sihlwald.—II.

IN the organization of a normally stocked forest the object of first importance is the cutting each year of an amount of timber equal to the total annual increase over the whole area, and no more. If is further desirable in any long settled community that the forests be so managed as to yield a measurably constant return in material. Otherwise difficulties in the supply of labor and the disposal of the produce make themselves felt, and the value of the forest to its owner tends to decrease. This is especially true in the case of the Sihlwald, whose mills derive their raw material exclusively from the forest to which they belong, and whose supply of labor is limited to the men whom it furnishes with steady employment. Either excess or deficit in the annual production implies loss.

In order to attain this steadiness of yield it is obviously necessary that a certain number of trees become fit to cut each year. The Sihlwald has accordingly been so "organized" that areas of equal productive capacity are covered by stocks of every age, from last year's seedling to the mature tree. These age-gradations succeed each other in a series so regular that in an hour's walk one may pass from the lot just cut over through a forest of steadily increasing age to the trees which have reached the limit of the rotation of ninety years. Three such units of organization are present in the Sihlwald, but since the character of the Fraumunsterforst, as the forest on the right bank of the Sihl is called, separates it distinctly from the much greater area of the Sihlwald proper, and since the two divisions of this last differ only in unessential matters over which the treatment has no control, it will be necessary to speak of only one of them. The working plan for the Lower Sihlwald, then, prescribes for the forest which it controls the operations of what Dr. Schlich has called in his *Manual of Forestry* "The Shelter-wood Compartment System." It may not be without interest to follow the life history of a compartment in which this system is carried out.

After the mature trees had been felled and removed from the area which furnished the yield of the Lower Sihlwald last year the thick crop of seedlings which had grown up under their shelter was finally exposed to the full influence of the light and air. The felling and rough shaping of the timber, the piling of logs and cord-wood and the trampling of the men had combined with the crisis of exposure to destroy the new crop in places and create a few small blanks. Here, as soon as the disappearance of the snow had made it possible, groups of the kinds of seedlings necessary to preserve the mixture or destined to increase the proportion of the more valuable species were planted. The operation, necessarily an expensive one, is justified by the greater resistance of a mixed forest to nearly all the calamities which may befall standing timber. Simultaneously with the planting the Willows, Hazels and other worthless species were destroyed, as well as the "pre-existing seedlings," whose larger growth, according to the disputed theory held at the Sihlwald, would damage their younger neighbors more by their shade than their greater volume would increase the final yield of timber. The incipient forest, then, practically uniform in age and size and broken by no blanks which the growth of a year or two will not conceal, is fairly started on the course of healthy development, which it is to continue undisturbed until it reaches the age of fifteen years.

At this point occurs the first of a series of thinnings which follow each other at intervals of seven or eight years, until the trees have entered the last third of their existence. There is, perhaps, no silvicultural question more in dispute than this of the time and degree of thinning which will yield the best results in quality and quantity of timber. The method pursued at the Sihlwald, consecrated by habit and success, gives ample space for the healthy development of the crown from a very early age without admitting light enough through the leaf-canopy to sustain an undergrowth until the trees are nearly ready to give place to their descendants. Such shrubs or seedlings as still appear, thanks to a shade-bearing temperament, are systematically cut out. It may be strongly doubted whether such a policy might safely be applied on soil less moist than that of the Sihlwald; but here, at least, the trees reach the age of sixty years, tall, straight, clean-boled, and in condition to make the best of the last part of the period of maximum growth, which a large number of measurements have shown to occur in general between the ages of seventy and ninety years. A heavy thinning now comes to the assistance of the best specimens of growth, and they are left to profit by it until seven years before the date fixed for their fall. Then begin the regeneration cuttings, whose object is to admit through the leaf-canopy an amount of light, varying with the temperament of each species, whose mission is to give vitality to the seedlings which the trees, stimulated themselves by their more favorable situation, now begin to produce in considerable quantities. To this end the light which falls from above has a powerful auxiliary in that which the system of felling each year in a long, narrow strip admits from the side, and so admirable is this double method that the time which elapses between the beginning and the end of a regeneration is but half the average for less favored localities. This applies only to the deciduous trees. The time required by the conifers is much longer, and the incomplete regeneration which they furnish is supplemented by planting in the blanks already mentioned. But for the self-sown seedlings of both classes the amount of light is gradually increased, the trees which sheltered them are at length wholly removed, and the cycle of growth repeats itself.

The wagon roads which once served for the transportation of the timber thus produced, although admirable in plan and construction and still thoroughly maintained, have been almost wholly superseded by a system of timber slides and narrow gauge railroads, in which gravity is the motive power. The timber, loaded directly on the cars of the light, portable track laid in the forest (see page 383), or, where the surface is broken, hauled to them by tough little Swiss oxen or carried down on hand sleds which are capable of taking enormous loads, is delivered at the head of one of the slides. Thrown in at the top of the V or U-shaped canal of boards or poles, it rushes down the steep incline of the slide with a speed which often shoots the sticks of cord-wood through the air for a distance of one hundred and fifty feet as they rebound from the iron-clad platform at the foot, and not infrequently tears apart great logs in the violence of the fall. Piled once more on the cars, this time of one of the two permanent tracks which follow the bottom of the valley at divergent levels, the timber pursues more quietly its journey to the mill, whither it arrives in trains of from five to twenty cars under the guidance of a single brakeman. Such a system of transportation is only possible where considerable amounts of timber are cut on limited areas, but its application to the Sihlwald has resulted in so steady and marked a decrease in the cost of moving the produce of the forest to the mills that its value under similar circumstances may be taken to be proved.

Nancy, France. *Gifford Pinchot.*