strips six or eight inches long, and shaped like the ordinary "tally," are best. These are easily cut out of a sheet of zinc with a pair of strong scissors. Labels thus prepared have been in use at Kew two years and they are as perfect now as when they were first written. In the tropical houses, where the atmosphere is saturated all the year round, these labels are quite as good as in a dry house or out-of-doors. The first experiment with them was made with the Filmy Ferns, for which durable and neat labels were much wanted. They have stood this test. In appearance these labels are all that need be desired. They are not too conspicuous and therefore do not offend the eye as white labels do; on the other hand, they are easily read. In public gardens, such as Kew, labels are of considerable importance, as also they are wherever valuable collections of plants are grown. So far as our experience goes, this zinc label, when prepared as here directed, comes nearest to what is wanted.

The diseases of plants are many and mysterious. Every gardener has had experience of their ravages in some form or other, and probably, also, has been disheartened by his failure to check the enemy by any means known to him. Canker, club, mould, rust, scab, spot; these are familiar terms in horticulture, but few, if any, horticulturists have a clear knowledge of what these diseases spring from, much less how they can be cured. It is only recently that one of our most eminent amateur horticulturists expressed to me his conviction that "spot" in Orchids was due to the attacks of some parasitic fungus, and that he always took the precaution to remove any leaf which showed signs of the disease. Had he been right in attributing the disease to a fungus, this action would be commendable. But it has been decided by one of our most eminent physiological botanists that Orchid "spot" is certainly not fungoid in its nature. This case is noteworthy as showing how much we are in ignorance of the real nature of the numerous diseases to which plants under cultivation are subject. The publication, therefore, of a trustworthy book dealing with some of the diseases of plants, may be hailed with pleasure by gardeners. Professor Marshall Ward, who is one of the most eminent of the modern school of botanists, and who has paid special attention to vegetable pathology, has written a delightfully readable book on this very subject. It is published by the Society for Promoting Christian Knowledge, and is one of a series of publications called "Romance of Science." The diseases treated upon by Mr. Ward are the commonest and best known, such as potato disease, smut, rust, hop disease and lily disease. These are diagnosed and prescribed for in a manner easy to understand, and at the same time thoroughly. One is surprised to read in the introductory chapter that "between 1866 and 1889 the amount of research in this department has been enormous, and the literature of the subject has become overwhelming." I once had occasion to collect information on this very subject, but could find exceedingly little, in English at any rate. Mr. Ward has made a beginning, and we may hope that he will extend his investigations to other of the diseases of plants besides those treated upon in his book. A really comprehensive, reliable book on the whole subject of plant diseases, and written for horticulturists and farmers, would be of great service. Mr. Ward himself says: "The time is rapidly approaching when a farmer or a gardener will as little dare to neglect the study of the physiology and pathology of plants as a surgeon dare practice without a knowledge of anatomy, or a sailor hope to become a captain without studying navigation. Moreover, these are not studies which will bear trifling with, and he who hopes to understand them must take the necessary trouble to learn how to trace the connection between cause and effect, and scientifically reason from the simple to the complex. In this department the days of empiricism are indeed numbered." Mr. Ward's book is precisely what is wanted as a beginning. It is published in New York by Young & Co. The price here is two shillings and sixpence.

Anthracite Coal.—The fitness of this as a substitute for coke has been the subject of discussion here for some time, as the result of a rise in the price of the latter. It is stated by some who have used anthracite for years that a considerable saving is effected as compared with the cost of coke. But it does not appear to be satisfactory in all cases. An eminent American nurseryman when at Kew a little while ago informed me that anthracite is universally preferred to coke in America. It would be interesting to English readers of Garden and Forest if some one acquainted with the peculiarities of coke and anthracite, when used for horticultural heating, would relate his experience. We find a difficulty in using the anthracite for furnaces originally intended for the consumption of coke.

London. *W. Watson.*

Cultural Department.

Some Wild Flowers of California.

Phacelia Parryi is one of the loveliest of the annuals of southern California and a universal favorite among those who have made its acquaintance. Every one who sees it face to face feels an instant admiration for its beauty, and a kind of friendship for it such as we experience in our intercourse with the Pansy and other flowers which confront us with something akin to a human expression.

The plant delights in warm, sunny exposures, on the banks of cañons, among the foot-hills, in fertile valleys and on the hill-sides. It extends in San Diego County from the seashore to the confines of the Colorado Desert, southward to near San Quintin Bay, Lower California, and perhaps beyond. It has an open, rotate corolla of a rich and brilliant royal purple, well set off by the dark green foliage. Occasionally a flower may be found of a paler color, sometimes nearly white. With nearly all of our native flowers that are normally purple in color, I find albinism a common occurrence, though rarer in some species than in others. This rule, if such it may be called, is also true of purplish pink flowers, like Erythræas.

In the spring of 1884 there was an unusually abundant rainfall, which played havoc with our roads, but the botanist who was driven to little used thoroughfares found himself repaid by the wealth of luxuriant vegetation which followed. A new grade had been built the previous season from San Diego City, leading into the old mission valley, and along the freshly cut embankment I found this beautiful plant growing in the greatest abundance. Since then it has been almost totally absent from this locality, not more than a score of plants growing on this road during the spring-time of 1889. Why this sudden disappearance? is the question which naturally arises and remains unanswered. The existing conditions seem equally as favorable as in other localities where it still thrives—and often in close proximity to well traveled roads.

For cultivation I should call this one of the most desirable of the many pretty annuals which California affords to the horticulturist. It is capable of most effective display, and under favorable conditions will produce a profusion of flowers for months.

Dodecatheon Clevelandi shows itself, generally, in early spring over the hills, mesas and valleys of southern and Lower California, especially near the coast. The flowers pass from clear pearly white through lovely shades of pink and rose-red into a brilliant purple, and a large field thickly dotted with their nodding heads is a vision of loveliness familiar to Californians. For many years this and numerous other forms throughout the western states have been known to botanists as the *Dodecatheon Meadia* of Linnæus. Within recent years Mr. E. L. Greene has studied our Californian forms, describing several as new species, and naming this in honor of the earliest resident botanist in San Diego, Mr. Daniel Cleveland, whose early collections brought many new plants to light. It is scarcely worthy of specific rank, but for cultural purposes may be allowed that honor. Every child is sure to gather large handfuls of the fragrant flowers when spring comes, and each has some pretty name for them, such as Rabbit-ears, Shooting-stars, Johnny-jump-ups or Mad Violets.

This flower should become as general a favorite as the Cyclamen. The perennial roots are easily transplanted, and no difficulty should be experienced in making it thrive in eastern houses and gardens. In California they may be planted as borders to beds, or grouped in masses, or dotted thickly over a garden as if they were wild. The broad leaves form a pretty rosette before the one or more spikes of flowers appear. The flowers are admirably adapted for bouquets and the use of florists, and their good qualities are already recognized away from their native home.

Gilia dianthoides bears a flower which in size and beauty is out of all proportion to the plant itself, which consists only of a slender, wiry stalk, half an inch or so in height, with narrow, inconspicuous leaves; but from this stalk appears one or several rotate, rosy pink flowers, half an inch across. The flower is of such a delicate texture and is borne so near the ground that it is scarcely available for any decorative purpose; but a field carpeted with them as they shine in the morning sunlight, cannot fail to kindle admiration. Under favorable conditions the plant attains a larger size and forms a dense mat spreading out over the ground. In cultivated fields I have found a single plant spreading in this way more than a foot across—completely hidden by the numerous wide-awake flowers. It is not rare to find a plant with pure white flowers, especially among the foot-hills. A similar species (*Gilia Orcuttii*), with white

flowers slightly variegated with purplish red, was collected in 1883 on a mountain in Lower California, but has not since been seen. Another equally beautiful species (*Gilia bella*) was discovered on the high table lands of northern Lower California among the Pinyon Pines, and I have since seen it abundantly on the mountains bordering the Colorado Desert. It has the same characteristics as the last, but more brilliant and darker flowers of smaller size.

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

Large Glass in Green-houses.

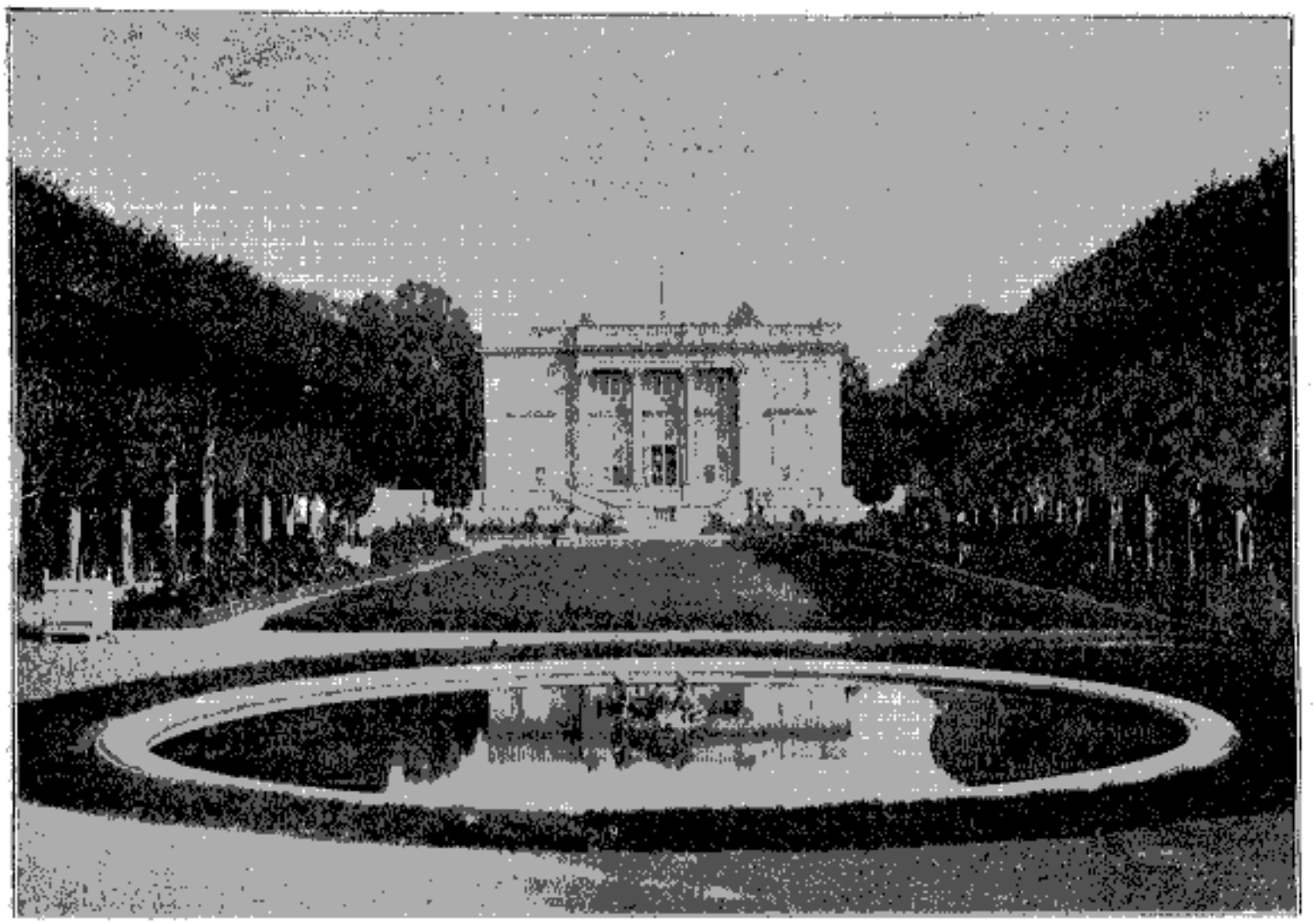
MY first green-house was a small one, twelve by thirty-three feet in dimensions, with benches against the sides and a path down the centre. It was covered with a span-roof made of hot-bed sash of three by six feet dimensions, which were set with six by eight inch glass; it had a ridge made of boards two feet wide, which cast a shadow always, and the wood of the sash-bars and heavy rafters caused more shade still. Standing north and south, the shade, as the sun passed across the sky, was shifted from west to east, and in dark days and cloudy weather, with the sun low in the sky, the house was still more in the shade than in the fuller sunlight of the spring months, when the sun was higher.

This house is now used for growing Geraniums, Fuchsias, Verbenas, Petunias, Panales, Callas, and other vigorous flowering plants; also for Dandelion, Radish, Cress and the like, among vegetables. I knew the lack of sunlight affected the growth and vigor of the plants to a considerable extent, but did not realize how much till the past season.

Last September I completed a structure, thirteen by twenty-five feet in dimensions, the south front covered with glass, and the back kept dark for storing things that did not need light, like Celery, Endive, Spinach and Salsify.

The front, five by twenty-five feet on the south side, was covered with double thick glass, sixteen by twenty-four inches in size, on slender rafters six feet long. I never had success with Lettuce in the span-roof house, but the other things mentioned always did well. In September last I set Lettuce in the new house, directly under the glass, and the contrast in growth was most marked. In the new house the Lettuce grew steadily and rapidly in the almost unobstructed sunlight, and made good heads for market, much better than had been obtained from the old house. The plants were free from the green fly and were grown without fumigation or artificial heat from September to December, while that in the span-roof house—a few plants put in as an experiment to test the comparative merits of the two houses—was as poor as usual. Although the house has been occasionally fumigated and supplied with some artificial heat, the Lettuce is still too small for market and is also troubled with the green fly.

This is an object lesson that is very convincing to all who have seen the contrast in growth and vigor in the tree houses. The chances were all in favor of the Lettuce in the old house, if care and attention could avail, but when simply left alone to grow in the free sunlight, that in the new house was altogether superior.



The Petit-Trianon at Versailles.—See page 614.

Lettuce has always been considered to be specially difficult to grow under glass, from its tendency to damp off and rot. Slow growth and the green fly have also been great hindrances, but in the light of this experience, sunlight seems more essential than any special care.

Houses twenty-two by two hundred feet, covered with sixteen by twenty-four-inch glass, on rafters three by four inches, facing the south or south-west, ten feet high on the back and three on the front, with sunken paths, and arranged to be aired across the beds, make the best houses so far devised for Lettuce-growing; and the same principles applied to a smaller house should produce similar results.

West Springfield, Mass. *W. H. Bull.*

Orchid Notes.

Vanda cærula.—Taking a survey of the hundreds of Orchids known, one cannot fail to be struck with the remarkable scarcity of blue flowers among them. Such colors as red, orange, scarlet, yellow and their intermediate shades are well represented; various hues of crimson and purple (which, artificially, cannot be obtained without the assistance of blue) are frequently met with; and white—although artists