known ornamental qualities. But it is interesting as a curiosity, because the very small and inconspicuous flowers are produced on the midribs of the leaves about in the centre of the upper surfaces. The species is dioecious, the staminate and pistillate blossoms being produced on separate plants. The specimen at Münden is three or four feet high and is staminate, and has therefore produced no fruit. This curious shrub has not yet proved hardy at the Arnold Arboretum, but it has flowered, producing staminate blossoms. As there appear to be no records to the contrary, it would seem that the plant has not yet fruited in Europe or America. The fruit is a rather dry little drupe, but it is said that the natives of the mountains of Japan use the young leaves as a vegetable. Hydrangea scandens and Schizophragma hydrangeoides are two Asiatic plants about which there is often much confusion. The Schizophragma has not yet been found very hardy at Münden. In ordering either of these species from nurseries one is liable to get the other. But the Hydrangea may always be known by its very few sterile or ray flowers having four large rounded or retuse bracts together and in opposite pairs, while in the Schizophragma the leafy bracts are solitary, oval, narrow and somewhat pointed.

Another plant which may be mentioned, because extremely rare in cultivation, is Eleutherococcus senticosus, a hardy Araliaceous plant from northern Japan and China, which I found here seven feet high and in fruit; while Acanthopanax ricinifolia, a member of the same family, is fifteen feet in height and gives every promise of becoming the large tree with a tropical aspect, which it is said to be in Japan. This species has proved quite hardy at Boston, and it is probably capable of withstanding quite a number of degrees below zero of Fahrenheit.

The species mentioned give but a slight idea of the character of the collection of shrubs and trees under Dr. Zabel's care, and yet the rare herbaceous perennials have not been referred to. The collection contains a very interesting and complete series of species and varieties of Spiræas, one of the most distinct of the least known being S. longigemmis of Maximowicz. Numerous hybrids of these, and also of Bush Honeysuckles, have been procured and propagated, and from these some improved forms possibly may be introduced to add beauty to our gardens.

Arnold Arboretum. *J. G. Jack.*

Plantains.

THE following extract is taken from the last report of the Botanical Garden at Demerara:

The generally accepted opinion of botanists is that the Banana and Plantain are but forms of one species. Yet, from an economic point of view, the two are widely separated, for, in regard to utility as a food-product, the banana cannot be compared with the plantain. Without explaining all the differences, it may be briefly stated that while the banana is a pleasant, agreeable and much-appreciated fruit, it has, judging by the preference of the people of torrid lands, little economic value as a food-product; the plantain, on the other hand, is regarded as intrinsically one of the best natural food-products in the world. Yet the opinion of the botanists is in a way supported by the non-scientific observer, for, except in rare instances, only after long and well-trained field experience can one plant be distinguished from the other when not in flower or fruit. When in fruit, however, the case is different. There is then a character, observable at sight, which only requires to be pointed out for the veriest novice in the subject to be able to tell which is which. In the Banana, after the fruit has set, the succeeding clusters of flowers, often a hundred or more in number, and their large embracing bracts, drop away, leaving a clear, absolutely naked, long extended and still elongating stem or axis, hanging tail-like two to three feet beyond the fruit, with the firmly compacted mass of unopened bracts and flowers, bud-like, at the end; while in the Plantain the stem ceases to extend more than twelve or eighteen inches beyond the fruit, the succeeding clusters of flowers and bracts all opening to the very end, and remaining persistent, withered and dry—the trash as it is called in colonial phraseology—permanently attached to the stem. In the Banana the axis continues to grow as long as the fruit hangs, cluster after cluster of flowers, with their bracts, opening and dropping away, a mass, like an enlarged Nelumbium-bud, still unopened, remaining at the far extended end when the bunch is cut; while in the Plaintain the growth of the axis is arrested soon after the fruit sets, the abortive flowers opening, and remaining attached, from end to end of the stem. A single exception to the rule obtains in the case of the Dwarf or Chinese Banana (Musa Cavendishii), in which, as in Plantains, the abortive flowers and their bracts are constantly persistent. The texture of the plantain is such that at whatever stage it is used, whether green or ripe, it must be cooked to make it palatable. It is this quality in the plantain which makes the great economic difference between the two fruits. Plantains are chiefly used by the populace while still green—i. e., cut at some period before they are full grown. They are cooked either by boiling or roasting, chiefly the former. To successfully peel a green plantain without soiling it, the operation must be performed with wet hands or with the fruit immersed in water. The plantain contains a measure of tannic acid, and consequently in boiling in a metal pot has a tendency to turn very dark. This may, however, be prevented by boiling a little fat with the fruit—say a bit of fat pork. Green plantains are also used for making soup. For this purpose they are boiled and then pounded in a mortar, when they form a homogeneous mass, like dough, which is put into soup and eaten with it. In the mature, but still green stage, plantains are roasted and eaten with butter, pepper and salt, and in some cases cheese. In this state they are delicious. The plantain parts with its heat very rapidly, and in cooling it loses, to the palate, much of its best taste. It is spoiled by rewarming. For this reason roast plantains are usually served wrapped in a table-napkin, for, to be enjoyed at all, they must be eaten before they cool. When ripe—that is, when the skin has turned yellow—a fruity character is assumed, and then they are used either baked whole in an oven, or cut in slices and fried. Baked ripe plantain has much the taste of baked apple, but with a distinctive flavor, and a much more tenacious nature. Lastly, gathered green, dried and ground or pounded, an excellent meal or flour is produced, which makes delicious custards, puddings, gruel, etc., and is highly palatable and nutritious.

Plantains being the staple food of the Creole population, Plantain cultivation is a firmly established industry. Three or four varieties are grown, one or two of which, however, only on a very small scale. Two color-varieties, presenting hardly any distinction in the character of the fruit, but with the stems and stalks of the leaves blackish in one and green in the other, are most generally grown, and form the bulk of the cultivation. They pass under the names of the Black and White, Common or Cow, and sometimes Maiden Plantain. The others are the Giant, or Horse, and the Barooma, both very large-fruited kinds, the latter of which is not much grown. Plantains give a heavier yield than Bananas from the same land. They delight in the stiff, newly empoldered clay lands of this colony, not objecting to the slightly saline element found where the sea or river has invaded the place periodically at spring-tides while it was lying fallow under the natural bush-growth. Such lands yield heavily, but the crop is liable to suffer, if the seasons for the first two years after planting prove very wet, from the Plantain-disease of the colony. On dry land it does not do much damage. Introduced to such land it soon disappears again. The disease which affects Cocoanut-trees, from which many are from time to time lost in ill-drained situations, appears to be identically the same. In both cases, it takes the form of internal decay, the substance turning to a sodden, offensively scented, putrid mass. The plantains produced by diseased trees are black inside, but not soft like the interior of the stems and root-stocks of the plants. They are, of course, quite unfit for food. Its nature has not yet been determined, though it has been observed closely in the fields, and samples of the affected parts have been examined by distinguished mycologists to ascertain whether or not it be of fungoid origin. The aboriginal Indian inhabitants of the interior do not, as a rule, cultivate this fruit, though they grow here and there in their cassava fields pineapples and a few bananas.

The Forests of Lower California.

ALONG the boundary between Upper and Lower California no forests exist and the variety of trees is very limited. A few miles south of the boundary, on the broad table-lands of auriferous gravel, begins the beautiful Piñon forest, composed mainly of a Nut Pine (*Pinus Parryana*).

These trees only partially shade the ground, forming an open forest, perhaps thirty miles in width in places, and extending from near the boundary line southward along the backbone of the peninsula, with only an occasional break, to the south end of the Sierra San Pedro de Martin. This forest is continuous for nearly fifty miles, the plateau which it covers varying in altitude from 3,500 feet to near 7,000 feet.

The Piñon is a small but very graceful tree, usually under thirty feet in height, with sheaths of short leaves, which densely clothe the tree. In shape it is very symmetrical, especially such young trees as have not been exposed to adverse conditions.

Encircling the meadows at high elevations is found the Bull Pine, or Piños, which J. G. Lemmon calls Pinus Jeffreyi, var. peninsularis (*Third Report California State Board of Forestry*, 200). It seems to be most abundant on the mountains east of the San Rafael Valley, at an elevation of 4,000 to 6,000 feet, where it attains magnificent proportions. Lemmon describes this tree as varying from medium to large size, 150 to 200 feet tall. The mining camp of Alamo, locally best known as Hanson's ranch, now obtains its main lumber-supply from this region. On the east the descent to the plain of the Colorado desert is very abrupt, and along the precipices overlooking the desert another Piñon Pine (*Pinus monophylla*) maintains a precarious existence.

A greater diversity of forest-vegetation exists on the San Pedro de Martin mountain, the highest mountain in Baja California. Its elevation at the highest point is over 11,000 feet. On this mountain occur the Sugar Pine, Coulter Pine, the White Fir and other trees which here find their most southern station. The summit of the mountain is a world in itself, over fifty miles in length, and was selected as the site of one of the old missions, the ruins of which may yet be distinguished. It is very difficult of access, and as yet has never been visited by a botanist.

The two views published in this issue will be of especial interest as giving a glimpse into an unknown land, and are from photographs taken by Messrs. Roscoe Howard and Russell Gunnis, the first men to invade these sylvan glades with a camera. The Pine in the foreground is Jeffrey's Pine (see page 185). The magnificent proportions of this tree may be realized by a comparison with the man standing beneath it, while the trees around even surpassed it in altitude.

The broad grassy meadows intervening between these patches of woods are still pastured by deer, and game of other descriptions abound. The coyote and the mountain lion are not unknown. The noonday siesta of the rattlesnake is seldom disturbed, while the call of the quail alone breaks the silence of the woods.

To the southward of this mountain an unbroken desert extends for two hundred miles, while desert sands alone intervene between its eastern base and the Gulf of California. Thus San Pedro de Martin furnishes the most southern typical California forest, the forest farther south being composed mainly of cacti and desert vegetation.

C. R. Orcutt.

San Diego, Cal.

Plant Notes.

Some Recent Portraits.

To American readers the most interesting figure in the March issue of the *Botanical Magazine* is that of Cereus giganteus (t. 7222), the great Tree Cactus of Arizona and Sonora, but not a native of southern California, as is here stated, whose flowering in England last year Sir Joseph Hooker very properly considers one of the triumphs of horticulture. The plant which flowered at Kew is fourteen feet high and four and a half feet in girth, and was procured from Messrs. A. Blanc & Co., of Philadelphia, whose collection of succulent plants is probably unrivaled in the United States. C. giganteus is one of the vegetable marvels of the world, sending up a tall single shaft sometimes sixty feet in height, and sometimes separating near the top into two or more upright branches. It is the tallest, although not the stoutest, of all Cacti, and produces an edible fruit which the Indians of the south-west devour both raw and made into a conserve. Numerous attempts to cultivate this plant have been made since General Emory first gathered the seeds as long ago as 1847, during his military reconnaissance from the Missouri River to San Diego, in California; and although Dr. Engelmann succeeded in germinating the seeds and inducing the young plants to live, they have grown so slowly as to give little promise of ever reaching sufficient size to flower. A peculiarity of the plant not noticed in this description is the wonderful durability of the hard woody skeletons of the stems; these can be found lying about the desert and are used for the rafters of houses and apparently are indestructible by any influence of weather.

In the same issue are figures of Dianthus callizonus (t. 7223), a lovely Pink of the calcareous Alps of Transylvania, where it flourishes at an elevation of some seven thousand feet above the sea. It appears to be closely related to D. alpinus, and, like that species, has solitary flowers with crenate rose-colored petals with a deep red zone of color at their base speckled with white, although the flowers are larger and the leaves more glaucous than those of that species; Gongora gratulabunda (t. 7224), a not very showy or horticulturally interesting Orchid, probably a native of Granada, where it was discovered by Warscewicz, and was first flowered in 1857 by the late Consul Schiller, of Hamburg; Chrysanthemum rotundifolium (t. 7255), a handsome Hungarian species, differing from those in general cultivation by its strict rigid habit, acutely angled stem and branches, corymbose many-flowered inflorescence, and broad leaves. It belongs to the section Pyrethrum of the genus which includes most of the perennial white-flowered species, although it differs from them in the terete, not ribbed or angled achenes, and in the cupular pappus. It is a low-growing plant in cultivation, rarely exceeding the height of two feet, and in the rockery at Kew flowers freely throughout the summer; Lysimachia paridiformis (t. 7256), a native of China, where it was collected by Dr. Henry on the Yang-tse-kiang River in 1889. This is a handsome red-stemmed species with bold leaves, yellow corollas, marked like the calyx with glandular streaks, unequal filaments, monadelphous below, and few-seeded five-valved capsules. It is said to be more closely related to L. quadrifolia of the eastern United States than any other described species, although the flowers are much larger than those of the American plant.

New or Little-known Plants.

A New Strain of Roses.

IT now appears that the Rose may be added to the list of plants which may be treated as annuals. Seeds of a variety, under the name Rosa polyantha remontant, received from a French seedsman early in the year, were sown January 10th. They germinated rapidly in greenhouse warmth, and, after being pricked out, have been grown in a pan on a shelf in the cool house. They are now small plants, two to three inches high, and every shoot apparently is carrying a bud. The first flowers opened April 9th, just three months from sowing. The flowers are coming in considerable variety, white and pink mostly, single and semi-double, an inch or more in diameter. At present they are charming little plants, with small stems and small light green foliage. With their prolific flowering habit and rapid growth they can scarcely fail to prove useful and attractive garden-plants.

Their precocity is certainly novel and interesting. Some few years since Carnation-growers were much surprised by the introduction of a strain of these flowers which could be had in flower in four or five months from seed, surprise which has given way to satisfaction with the desirable Marguerites.

Perhaps, the Rose having developed a precocious habit, we may be favored with even finer forms than R. polyantha remontant. It would seem that flowers are being inoculated with some of the rapidity of the age.

Elizabeth, N. J. *J. N. Gerard.*

Foreign Correspondence.

London Letter.

Hippeastrums at Chelsea.—The special attraction this month in the nurseries of Messrs. J. Veitch & Sons is the collection of Hippeastrums, more popularly known as Amaryllises. These plants have been a specialty, almost a monopoly, of the Veitchian firm for the last ten years. They have raised many new varieties, every year producing a crowd of new seedlings, a large proportion of which are so far an advance as to merit certificates from the Royal