

SUMMER.

No class of plants is so remarkable as that in which are included the many and curious forms of orchids. The anomalous structure of the flowers, their amazing variety, and the manner of life proper to most of the species would alone give interest to this race of plants. The representatives of the family that are found in Britain grow like other plants upon the earth; but the tropical forms mostly perch themselves upon the branches of trees, or in the clefts of rocks, procuring their nourishment partly from the atmosphere and partly from the decaying organic matter that casually accumulates about their roots. To denote this existence, and to distinguish them from 'parasites,' these tree-inhabiting orchids are called "epiphytes." No plants produce blossoms of more rare and transporting beauty, or of figures more fantastic, of odours more delicious, or of colours more rich and vivid. They seem to take pleasure in deviating from all the ordinary types of structure; and in many cases resemble insects, birds, and reptiles, and even quadrupeds and the human figure. Several of these vegetable mimics reside in our own country, England giving us in this respect, as in most others, a miniature representation of the whole world. They are distributed all over the globe, growing in all latitudes but the very coldest and the very driest. In temperate countries like our own they are exclusively terrestrial, and ornament our meadows and marshes with their fairy forms; but in the hot damp woods of the tropics they are chiefly aerial and decorate the trees with natural jewellery. No plants better recompense a florist than do the epiphytic species, nor do any impart so magic a beauty to our hothouses. They require, however, special treatment; they do not mix well usually with other flowers, so that an "orchid house" becomes a distinct necessity when they are to be cultivated. The distinguishing peculiarity of the structure of these wonderful plants is the blending of the filaments of the stamens with the styles and stigmas. The nature of this blending is in itself peculiar, and, in order to understand it, we will quote from a work recently published by Mr. Leo Grindon, lecturer on botany in Manchester, on "British and Garden Botany." He says:—"Being indigenous, the type or plan of the flowers of orchids is ternary. This is generally plain enough in the three sepals; but leaving these, we seem to lose it almost immediately; and, in fact, it is only by observation of the exquisite structural structure pointed out by Mr. Darwin, that the ternary structure of the remainder of the flower becomes evident. This keen observer shows us that an orchid flower consists of fifteen elementary parts, many of them in a much modified and confluent condition, and that every one of these fifteen is indicated by a group of vessels (microscope of course) which runs into it from the general axis." Mr. Darwin's researches on the orchids are of a highly interesting character, and he has perhaps thrown more light on their structure than any but a naturalist of such general information could have done. The facts connected with the life-history of these plants, as set forth by Mr. Darwin, are most extraordinary. He shows that most, if not all, of the British species absolutely require the aid of insects in order that the ovules may be fertilized—in other words that an orchid is incapable of producing ripened by virtue of its own powers merely, and that the structure is actually adapted to it; and that were moths and similar insects not to visit these plants when in bloom they would be sterile. Moths he calls their "marriage partners." The most extraordinary part of the customary condition and structure of the orchids appear to involve no exception to this rule. If the flowers were considered as to require some special adaptation on the part of an insect, the insect is forthcoming. Mr. Darwin makes use of this instance as an illustration of his views with regard to the origin of species. Thirty-five British orchids are indigenous to Great Britain. In colour they are mostly white, sometimes white or green, and often beautifully marked. Many of them exhale a pleasant perfume, especially in the evening. Spring is the most beautiful season of their appearance, and a search for them will well repay the labour. A few belong to summer, and the "ladies' trees" to advancing autumn. They grow in woods, meadows, and pastures; in marshes, upon hills, and on grassy banks near the sea. They are not very particular as to soil, so that the place is left undisturbed—the insectiform species, however, are nearly confined to chalk and limestone. The cultivation of tropical orchids under glass houses in England can only be successfully carried out by a careful study of the habits and circumstances of these plants in their native regions. A high temperature, and a climate either constantly humid or at least periodically so, are eminently favourable to the production of these plants. Where the conditions are favourable, Oriental travellers speak of a whole tree being overgrown by a single species; and Hensman assures us that on the Spanish Main he saw the epiphyte, called the Spread Eagle, clasping enormous trees and covering them from top to bottom. It is said that the topmost branches of trees are the favourite positions for these erratic plants, and they may be seen swinging in the air from the top of old patriarchs of the forest, or exposed to all the violence of storms in the most elevated position. In the early days of the artificial culture of orchids it was supposed that great heat and moisture were essential to their existence; but it has lately been proved that very many species will do quite as well under "cool treatment;" and from recent satisfactory trials we may expect that not a few will become ere long inhabitants of the conservatory or be seen growing on the parlour table, rivaling their exquisite blossoms with those of the fuchsia and the geranium. The specimen given in our Plate—*Dendrobium Devonianum*—belongs to one of the grandest tribes in the great family of orchids; they require considerable heat and moisture during their period of growth, and a season of complete repose in a cool and dry atmosphere. Strong contrasts of seasonal influences will, as a rule, ensure the best results in their growth and their bloom. The other orchid of our bouquet—*Cattleya leopoldi*—is one of a remarkable family, the noble forms and brilliant colour of which distinguish the species as exhibition plants. To grow them well requires care and skill. They thrive best in pots, which may be filled up above the rim on a deep stratum of bits of brick with a mixture of fibry peat and cocoanut dust, and on the mound so formed the bulbs are planted. Others require blocks or baskets with a little moss. In watering care should be taken not to wet the bulbs, and the roots should have but moderate supplies—sufficient, in fact, to keep the soil moist and no more. The finest species of *Cattleya* have prodigious blossoms of two or more shades of deep rich lilac and purple, the lip coloured intensely and faintly fringed. Mr. Grindon, when writing of the uses of plants, says:—"Uses for so large a tribe the orchids can scarcely be said to possess, except that in supplying keys to profounder knowledge of the structure and physiology of plants in general than could possibly be obtained were they absent, they do in fact subserve the highest and grandest of all uses. Any plant that contributes to the advancement of physiological science is in that respect inestimably useful." Economic orchideous products are the delicious spice called Vanilla; Salep, prepared from the farinaceous tubers of certain orchids, consisting almost entirely of the chemical principle called Bassorin; and a kind of vegetable glue, made from the roots of the species used for several purposes in Brazil.

We recognise in our Plate the beautiful wax-like flowers of the *Stephanotis*, suitably named from *επιφανος*, a crown, known as the Madagascar chaplet flower, the odour of which wafts out when the hothouse door is opened. As an artificial flower in wax or other material the *Stephanotis* is very successful, and we associate its white, long-tubed, rich-looking flowers with thoughts of bridal veils and orange blossoms, so frequently does it enter into the composition of bouquets and wreaths on such occasions. To the same family as the *Stephanotis* belongs the waxflower, the old-fashioned *Hoya*, which we remember from childhood longing to crush between our fingers, it looked so rich and crisp in its waxy pinkness. The regularity of the furry petals, with a hard and shining star in the centre, moulded to appearance out of the finest porcelain, and a gem of translucent honey depending from it like a drop of dew, scarcely realises one's notion of a living growing plant. The unopened buds of the *Hoya*—thick, flat, and glossy—present the most accurate pentagons in floral nature. No conservatory is complete without a due supply of beautiful foliage, and some plants are esteemed chiefly on account of the elegance and singularity of their leaves. Such are the *Begonias*, natives of the East and West Indies and the Island of Madagascar, and named after Michael Begon, a Frenchman, born in 1638; he was an Intendant of Marine and a promoter of botany. The *Begonias* are under shrubby, rather succulent, and moisture-loving plants. The leaves are alternate, simple, petiolate, usually undivided, but often serrate, and for the most part oblique, or larger on one side of the midrib than the other, with a form something like the sea shell called *Halilotes*, from which circumstance the species that show this peculiarity well are popularly called "elephant's ears." Many varieties of *Begonia* are cultivated, some having very curiously marked leaves, and some are hairy and of a deep red colour underneath. In other species the leaves are smooth, spotted with white or light green on both surfaces, and shining; while in *Begonia fuchsoides* they are so glossy as to look as if recently oiled. When held between the eye and the light, so as to become transparent, the leaves of the deep-coloured varieties present an extremely rich appearance, which in many is not lost by being dried. The flowers grow in panicles or corymbs, which are elegantly light and slender, almost always more or less pendulous. The buds are remarkably flat before expansion, resembling little circular shells, slightly convex on the surfaces. In colour they are usually pink or white, rarely red or yellow, and never blue or purple. Most of the species have the stamens and pistils in separate flowers, and occasionally these organs are produced on separate plants. *Begonia parviflora* is a delicate little species, with light green leaves and pure white blossoms, exceedingly pretty for ladies' bouquets. We associate the name of *Rondeletia* with perfumers' shops and delicious scents; yet the flower of this name is equal in perfume to any that is to be found in such empuriums, and has the advantage of being more permanent. *Rondeletia odorata* has flesh-coloured flowers with an orange throat, the flowers being disposed in broad corymbs. Many of the flowers which are included in our Plate can scarcely be cultivated by any but an experienced gardener, with appliances for the purpose, which are certainly costly. The *Rondeletia* belongs to the coffee tribe of plants—*Cinchonaceae*—a most valuable and extensive family. From its members we have not only the invaluable coffee-tree, but the *Ipecacuanha* and the *Cinchona*, which yields the priceless medicine quinine. All these plants require special temperatures and care to grow them in British soil; as also do the species of another tropical family, *Melastomaceae*, to which belongs our lovely flower the *Medinilla magnifica*. The blossoms form a grand rose-coloured chandelier, 12in. to 20in. in depth, and nearly as wide at the base. No greenhouse is complete without its vine, and we believe it is a fallacy to suppose that grapes will not ripen and grow in the same house with flowers. The one need not to interfere with the other, for at the season when the grapes are thickest and require most heat, and the vine-leaves exclude the light partially from the house, our plants are chiefly out in the open air removed from their winter quarters. Mr. Grindon calls the vine the most "illustrious tree in nature," and tells us that its birthplace is on the shores of the Caspian Sea. The beauty of the foliage of the vine, especially when the sun has purpled the fruit, has given it a place in art from time immemorial. "Vignettes" are so called because originally consisting of little sketches surrounded with viticines, or vine trails. To the same family as the vine *Vitaceae* belongs that most beautiful of hardy creepers the *Virginian creeper*, or *Ampelopsis hederacea*. It forms a summer tapestry for walls in the country and in towns, and we have often marvelled at its luxuriant growth in the thick smoky atmosphere of London. Nothing seems to kill it. We have one now peeping in at our window which has defied the worst efforts of a clumsy gardener. After growing for years in the heart of the west end of London, and transforming a back yard into a shady bowyer with its beautiful green foliage extended over copper wires, it was our lot to remove into the country, and call an acre our own. Our beautiful and faithful *ampelopsis* must, of course, have the benefit of the change as well as ourselves; but it was an inclement and bitter December day when he was removed; half his long roots were ruthlessly cut asunder, and, notwithstanding the fresh air and virgin soil of his new location, his life was despaired of. Gradually, as the spring came on, however, he showed signs of revival. His upper branches certainly succumbed to the bad treatment he had received, but his original energy burst forth, and he is now covering a naked wall with his rich green leaves—so n, however, to assume the deep red colour which marks the approach of autumn. We rejoice in this plant; and although in the winter its leaves are shed, there is such a richness in the bursting out of the new ones in the early days of summer that they are worth waiting for. A third plant of this vinous family is the *Cissus discolor*, the creeper represented by our artist. It has very long and slender stems; large ovate, pointed, and velvety leaves; pale coloured below and on the upper surface beautifully flushed with grey and crimson. It is a great favourite in hothouses and greenhouses, and makes a beautiful covering for the wall of a conservatory.

Poets tell us of the "vine-clad hills" of grape-growing and wine-making countries, and our imaginations are led to believe in vineyards as the most beautiful and picturesque of scenes. It is only when we have passed through the districts where they grow that we feel how much is due to the surroundings of the position and not to the vines themselves. Cultivated, as they are, around short poles and planted in regular rows, they lose half their imagined luxuriance; and a vineyard is not to be compared in beauty to one of our Kentish hop-yards, with its pale green tassels and light feathery panicles of flowers. When allowed to grow naturally and without regard to the production of fruit the vine is certainly a luxuriant and beautiful plant. In climates suited to it, as in the south of Europe, it covers whole houses with its charming foliage, and forms shady bowyers of a few bits of trellis-work, which are so inexpensively and easily constructed by the poorest of the children of the sun. In such conditions let us first see the time-honoured vine and not when trained, and trimmed, and cut, and twisted round a tiny pole not much higher than a walking-stick, as we see it on the hills of the Rhine, where its qualities are best appreciated and most to be admired in a glass of Cabinet Steinberger.