

Horticulture.

Jottings from the London Botanical Congress.

During the same period that the International Horticultural Exhibition noticed elsewhere was held, a Botanical Congress, under the able Presidency of Professor de Candolle, daily sat in the Raphael Room, South Kensington. The following are merely outline notices of a few of the papers presented and read :-

Mr. JAMES ANDERSON, Meadow Bank, Glasgow : Observations on the temperature of weather, and its effect upon plant cultivation.

Mr. Anderson considers that practical gardeners do not attach sufficient importance to the science of horticulture, but rely too much on routine, especially so with reference to the temperature of the air in plant-houses, and to that of the water supplied to the plants. He advocates the importance of employing water at least as warm as the air, or a little warmer, for watering tropical plants, especially Orchids.

Mr. CARROLL, Glasnevin : On garden drainage.

The author, after alluding to the necessity for, and the advantage to be derived from draining cultivated ground, goes on to state that no adequate provision is made to guard against drains being choked or stopped, and, in many cases, rendered quite useless, and even mischievous, by the intrusion of the roots of plants, and the deposit of oxide of iron, carbonate of lime, &c. The evil in question he proposes to remedy by laying a body of porous material beneath the drainage pipes instead of above them ; and this, because he has observed that roots always descend by preference to the bottom of any such porous substratum as they may come in contact with.

Professor DE CANDOLLE, Geneva : On a recent very exact measurement of the diameter of the trunk of one of the gigantic Sequoias of California.

M. De Candolle, in this paper, gave the measurements of one of the huge specimens of Sequoia (Wellingtonia) of California, viz., that known as the Old Maid. This tree has been broken off by a storm at a height of 128 feet, its base cut across now serves as a dancing floor. M. de la Rue has recently measured the diameter of this tree in the following way. A slip of paper was stretched across the diameter of this trunk, the annual rings being marked off with a pencil on the paper, according to the convenient method recently proposed by Augustin Pyramus De Candolle. This paper was exhibited by M. De Candolle, and the following details were given. The diameter at about the height of 6 English feet was 26 feet 5 inches English. The entire height of the tree, before it was broken by the wind, was approximately 350 feet. The number of rings was counted by M. de la Rue and his assistant, one going from the circumference towards the centre, the other in the opposite direction. The one counted 1223 rings, the other 1245, which were marked on the slip exhibited by M. De Candolle. The mean of the observations, which is no doubt nearly correct, gives the tree an age of 1234 years, which is not an extraordinary one for trees, especially conifers ; there are, for instance, Yew trees which date back from the Christian Era. The Sequoias grow in a deep and rich soil, and their rate of growth appears to have been very uniform ; thus on the slip it may be seen that at the age of 400—500 years, the annual rings were still thick, while in ordinary trees the layers become thin at from 50—120 years, according to the kind of tree and other circumstances. Specimens of the wood were also exhibited.

Mr. W. EARLEY : On the preparatory formation of trained wall fruit trees.

The writer sets forth that the present system of pruning trained trees in the nurseries is objectionable, on the ground that the too frequent use of the knife injures and often destroys the constitution of the trees when in a young state, and is one cause of wall-trees shrivelling and dying. It is also the cause of a too gross aftergrowth, and consequent unfruitfulness. He advocates, in place of the common system, summer pinching, which attains the end sought in less time, and produces a sounder tree, more favorable to removal.

Mr. S. HUBBARD, London : On the naming of plants.

The importance of botanical nomenclature to science, art, literature.—Classical origin of many of the names of plants.—Names of plants divided into two classes, natural and artificial.—Prevalence of artificial names at the present time ; objections to them.—Proposed revision of botanical lists.—Proposed establishment of a board of botanical nomenclature.

M. VAN HULLS, Ghent : Rational method of pruning. The writer assumes that the fruits produced in England are abundant, but small, and usually pro-

duced by trees left to their natural growth, owing to which they are neither so handsome in form nor so productive as might be. Their productiveness in England, such as it is, is due rather to the skill displayed and cost incurred in managing the ground than on the management of the trees. The writer assumes that the English prune their trees to make them grow, without considering any regularity of form or size of fruit.

He recommends pruning to obtain symmetrical trees and large fruit, by recognizing the character of the different branches ; as, for instance, whether fruit-bearing or wood-bearing, and treating them accordingly, in opposition to the system of treating all alike, which he calls the old system, and speaks of it rather as "pruning without system." The old plan leaves Nature to form wood or fruit branches at will ; he would so control Nature as to form either at pleasure. Mr. THOMAS LAXTON, Stamford : On the variations effected by crossing on the colour and character of the seeds of Peas.

The specimens exhibited were selected for the purpose of exhibiting the variations produced by crossing, in the colour and character of the seed of Peas, in the second and succeeding generations.

The results of experiments in crossing the Pea tend to show that the colour of the immediate offspring seed or second generation, sometimes follows that of the female parent, is sometimes intermediate between that and the male parent, and sometimes distinct from both ; and although at times it partakes of the colour of the male, it has not been ascertained by the experiment ever to follow the exact colour of the male parent. In shape, the seed has frequently an intermediate character, but as often follows that of either parent. In the second generation, in a single pod, the result of a cross of Peas, differing in shape and colour, the seeds therein are sometimes all intermediate, sometimes represent either or both parents in shape or colour, and sometimes both colours and characters with their intermediates appear. The results also appear to show that the third generation, or seed produced from the second generation, or immediate offspring of a cross, frequently varies from its parent in a limited manner—usually in one direction only, but that the fourth generation produces numerous and wider variations ; the seed often reverting back partly to the colour and character of its ancestors of the first generation, partly partaking of the various intermediate characters and colours, and partly sporting distinctly from any of its ancestry. These sports appear to become fixed and permanent in the next and succeeding generations ; and the tendency to revert and sport thenceforth seems to become checked if not determined.

The experiments also tend to show that the height of the plant is singularly influenced by crossing ; a cross between two dwarf Peas commonly producing some dwarf and some tall, but on the other hand a cross between two tall Peas does not exhibit any tendency to diminution in height.

No perceptible difference appears to result from reversing the parents and applying the pollen of the female to the variety previously employed as the male flower.

Summer Treatment of Bulbous Roots.

The following description of a mode of treatment of hyacinth and other bulbous roots during the summer months, in order to ensure a full bloom next spring, by Richard Adie, Esq., Liverpool, was read at a meeting of the Edinburgh Botanical Society, on the 10th ult. :-

The treatment I am about to describe was designed in consequence of an observation I made, that after a wet cold summer a large number of hyacinth (*Hyacinthus orientalis*) roots did not flower at all, although for several years previous they had flowered moderately well. The roots, to look at, appeared good, but their vitality was low ; they were slow to put out a few roots and leaves to preserve the bulbs from destruction, and this was all they did in their season of active growth.

In the native soil for the hyacinth the bulb is exposed to summer-drought and sun-baked earth during what is technically termed its dead season, so I thought if I could make a summer to them to resemble their native one, I would get the desired vitality next spring. The first trial made wrought such a change on the roots that I hope a short notice of it may prove of value to those interested in the culture of our finest spring flowers.

Hyacinth roots are lifted when the leaves show symptoms of decay, about midsummer day. At this season the forcing pit is not in use, and I thought it would answer my purpose to imitate, in so far as heat and drought are concerned, an eastern summer. I placed the bulbs in the sand which had been used for striking cuttings, and lighted the fire under them

twice or thrice a week, in order to keep the temperature of the sand near 60° F., which was continued for six weeks. The hyacinths were then removed and placed in a dry attic on a wooden floor in one instance ; in another they were suspended in a net or bag in a warm inhabited room, where gas burned till midnight.

The effect of this treatment was to make a marked change in the character of the growth next spring ; every root, small or large, flowered, and the older roots appeared to make efforts that exhausted them, for they sent up many heads, and thus separated the bulb into parts. In the heating process, moisture is freely thrown off from the plants ; this it is desirable to get rid of by active ventilation, for if not so attended to, there is a tendency in the hyacinth bulbs to decay.

The polyanthus narcissus (*N. Tazettas*) I have treated in a similar manner. After heating in the pit, I kept them for the remainder of the summer and autumn in a very dry warm place, so much so that the party in charge of them said that he thought they must be well cooked. Yet they have flowered this spring with as large full heads as can be desired ; one variety had just a little too much vitality imparted to it, for in the open air it had a large head above ground in February, which the March frosts destroyed. In them I consider the change wrought by summer heating to be more evident than in the hyacinths, for I have never found our summer to flower the polyanthus narcissus with any degree of vigor like the roots imported from Holland until I treated them as above described, which has brought roots that have been grown for some years in this country to be equal to the imported ones.

For other bulbous roots or plants that remain in their native country in an apparent state of rest, or dead season, as it is styled, while the soil is baked or scorched by a powerful sun, summer heating in a forcing pit will for this climate be found advantageous, and the system may admit of extension, if it be varied to suit the different habits of the plants to be treated. For example, the narcissus bulbs admit of a greater degree of drying than would be good for the hyacinth.

In seeds, a process analogous to the above is, I believe, well known to promote their vitality, and is practiced in malting, where vigorous growth is so much wanted, the plan being as I am informed, to dry the grain by a carefully regulated heat prior to damping and springing.

Plants for Rockeries.

When rockeries come to be properly treated, we shall see numerous interesting plants of tender constitution adorning them by the adoption of the very simple process which I follow of planting out in spring and removing before winter. I flower my large collection of Mesembryanthemums in this way, or rather in a way much more simple than that. In April and May I plant small specimens in suitable places ; I leave them to grow and flower as they please ; and it is astonishing how they do grow when put out, instead of keeping them in pots. In July or August I take cuttings of all the sorts, pot them four or five in a pot, put them aside in a batch together in a shady place out of doors for a month, and then transfer them to a top shelf in a greenhouse, or a bed of coal ashes in a frame. They grow tremendously all the autumn, and are potted into separate pots when convenient. From this stock the rockery is again furnished the next spring, the plants of the previous year being allowed to perish *in situ*. Probably many of the great tufts will live the winter through. Collections of succulents could be grown by this method to much greater perfection than by pot culture alone, and we might have some wonderful pictures by grouping on suitably built rockeries such things as *Crassulas*, *Portulaccas*, *Mesembryanthemums*, *Sempervivums*, *Echeverias*, *Rochets*, perhaps even *Stapeliads* and a few other of those interesting subjects that we occasionally meet with in the dry stove of an amateur who leaves fashion to its ephemeral vagaries, and follows for his own joy that which is always true, and which therefore is always good. Let me commend the following as indispensable even in the smallest collection :—*Sempervivum tectorum*, the common house-leek ; plant this in rich soil (it may be half cow-dung and half loam), on a surface of brick, tile, or stone, in the full sun, allowing a good peck of soil in a heap for it ; one crown to begin with is enough, but better a good patch, as there is nothing like immediate effect both in planting a park and a little rockery. *S. arachnoidum*, the spider's web houseleek, will grow well with positively no soil at all. It is then intensely white with the spidery threads but does not flower so freely as when grown in rather rich soil in pots. *S. flagelliforme* rather scarce, it is extremely beautiful, and flowers freely when established. About a peck of sweepings of a