

Nothing can be more charming than a thicket of these gorgeous and perfumed plants, so different at first sight, and yet so nearly allied, or rather identical in genus, with the Rhododendrons. Year by year the size of the flowers increases and the colours vary in Mr. Waterer's skilful hands, and now he has many examples of a double race, which, among other merits, last longer than the single sorts. The yellow hose-in-hose-like variety (*A. narcissiflora*) has proved with me most admirable as a forcing plant.

Those who have largely grown Azaleas know that they have what may be called two seasons—the first for their flowers, the second for the autumnal tinting of their leaves. In the autumn Knap Hill must again be lit up with brilliant colours in the Azalea grounds. Some Azaleas turn crimson, others purple and yellow and bronze, and for a week or two delight the eye. But, alas! the glory is short-lived. The frosts and the winds soon tear off the glowing leaves, and for the winter Azaleas cut but a sorry and meagre figure among their Rhododendron brethren.

I must now apologise to Knaphill for many sins of omission. My remarks are merely Rhododendron notes, and not detailed accounts of anything. Having related my visit to Mr. Anthony Waterer, in the open air of Woking, I propose shortly to change the venue, and interview Mr. John Waterer, of Bagshot, and his plants under his tent in London. *J. H. Mangles, Valewood, Hazlemere.*

(To be continued.)

LIST OF GARDEN ORCHIDS.

(Continued from p. 10.)

PLEUROTHALLIS,

85. *P. SANDERSIANA*, Rehb. f. in *Gard. Chron.* 1866, p. 74; *Refug. Bot.*, ii., t. 120.—A pretty little trailing species, having greenish-yellow flowers striped with purplish-red. Peru(?). Cultivated by W. W. Saunders, 1857.
86. *P. SARCOPHYLLA*, Rehb. f. in *Bonplandia*, 1855; Lindl., *Fol. Orch.*, n. 245.—Flowers purple. Caracas. Cultivated by Consul Schiller, Hamburg.
87. *P. SAUROCEPHALA*, Lodd., *Bot. Cab.*, t. 1571; *Bot. Mag.*, t. 3030; *Bot. Reg.*, t. 1968; Lindl., *Fol. Orch.*, n. 161.—One of the showiest; flowers yellowish-brown without, purple within. Brazil, Loddiges, about 1830. Hort. Kew.
88. *P. SCABRIPES*, Lindl. in *Bot. Reg.* 1839, Misc., n. 155; *Fol. Orch.*, n. 79.—Flowers dirty purple. Brazil. Introduced by Lieutenant Downey, and cultivated by Michael Williams in 1837.
89. *P. SCAPHA*, Rehb. f. in *Gard. Chron.* 1874, ii., p. 162.—Native country unknown. Cultivated by J. Day. See fig. at p. 784, vol. xv.
90. *P. SCLAREA*, Rehb. f. in *Linnaea*, xli., p. 49.—Cultivated in Kew Gardens, 1876.
91. *P. SEMIPELLUCIDA*, Rehb. f. in *Linnaea*, xxii., p. 823; Lindl., *Fol. Orch.*, n. 27.—Venezuela. Flowered at Kew in 1878. Hort. Kew.
92. *P. SERIATA*, Lindl. in *Bot. Reg.* 1840, Misc., n. 175; *Fol. Orch.*, n. 251.—Brazil. Cultivated by the Horticultural Society in 1840, received from J. Hearne.
93. *P. SERTULARIOIDES*, Spreng., *Syst.*, iii., p. 731; Lindl., *Fol. Orch.*, n. 271; *Specklinia sertularioides*, Lindl., *Gen. and Sp. Orch.*, p. 8.—Jamaica. (*Johnson's Gard. Dict.*)
94. *P. SICARIA*, Lindl. in *Bot. Reg.* 1841, Misc., n. 187; *Fol. Orch.*, n. 70; *P. tripteris*, Rehb. f. in *Linnaea*, xxii., p. 829; *P. trigonopoda*, Kl. in *Allg. Gartenz.* 1853.—Yellowish-green, with brown or purple stripes. Trinidad, Venezuela, New Granada. Cultivated by Loddiges and others.
95. *P. SMITHIANA*, Lindl. in *Bot. Reg.* 1843, Misc., n. 79; in *Journ. Hort. Soc.*, ii., p. 247, with a figure; *Fol. Orch.*, n. 133.—Flowers white, with purple spots. Brazil, Miers. Garden of Horticultural Society.
96. *P. STENOPETALA*, Lindl. in *Bot. Reg.* 1838, Misc., n. 182; *Fol. Orch.*, n. 200; *P. listrostachys*, Rehb. f. in *Bonplandia*, 1855.—Venezuela and Guiana to Brazil. Hort. Kew.
97. *P. STRUPIFOLIA*, Lindl. in *Bot. Reg.* 1839, Misc., n. 3; *Fol. Orch.*, n. 137; *P. picta*, *Bot. Mag.*, t. 3897, nec Lindl.; *P. bicolor*, Lindl. in *Bot. Reg.* 1842, Misc., p. 76.—Nearly a foot high, with rather large purple flowers. Mexico, Parkinson, Cultivated at Woburn in 1839.
98. *P. SUBSINUATA*, Lindl., *Fol. Orch.*, n. 223; *P. trichopoda*, Rehb. f. in *Bonplandia*, 1856, nec A. Rich.—Native country unknown. Described from a plant growing in Consul Schiller's garden at Hamburg.

99. *P. SUPERVACANEA*, Rehb. f. in *Hamb. Gartenz.*, xvi., p. 180.—Consul Schiller's garden, Hamburg, in 1860.
100. *P. TERES*, Lindl. in *Bot. Reg.*, sub-t. 1797; *Fol. Orch.*, n. 118.—Flowers cinnamon-coloured. Brazil, Loddiges, 1836. Flowered at Kew in 1862.
101. *P. TIGRINA*.—Mexico, 1838. (*Johnson's Gard. Dict.*) Probably a garden name.
102. *P. TRIBULOIDES*, Lindl., *Gen. et Sp. Orch.*, p. 6; *Fol. Orch.*, n. 243.—Flowers red, buried among the scarios sheaths at the base of the leaves. West Indies, Mexico, and Central America. Flowered at Kew in 1861.
103. *P. TRICARINATA*, Poepp. et Lindl., *Nov. Gen. et Sp.*, i., p. 49, t. 87; *Fol. Orch.*, n. 166; Rehb. f., *Xenia*, ii., p. 115, t. 137, ii., 10—13, iii., 14—24.—Peru, Bolivia. Cultivated by Consul Schiller.
104. *P. TRIDENTATA*, Klotzsch in *Allg. Gartenzeit.* 1840; Lindl., *Fol. Orch.*, n. 50.—Venezuela. Hort. Kew.
105. *P. VELATICAULIS*, Rehb. f. in *Linnaea*, xxii., p. 824; Lindl., *Fol. Orch.*, n. 173.—Venezuela, Otto, Fendler. Berlin Botanic Garden, 1840. Hort. Kew.
106. *P. VELATIPES*, Rehb. f. in *Linnaea*, xxii., p. 828; Lindl., *Fol. Orch.*, n. 20.—Venezuela. Hort. Kew.
107. *P. VILIPENSA*, Rehb. f. in *Hamb. Gartenz.*, xiii., p. 3; Lindl., *Fol. Orch.*, n. 268.—Central America, Warszewicz. Berlin Botanic Garden.
108. *P. VILLOSA*, Knowles and Westcott, *Fl. Cab.*, ii., p. 78; *Fol. Orch.*, n. 150; *P. lepanthiformis*, Rehb. f. in *Linnaea*, xviii., p. 397; *Specklinia ciliaris*, Lindl. in *Bot. Reg.* 1838, Misc., n. 40.—Mexico, Loddiges, 1838.
109. *P. VITTATA*, Lindl. in *Bot. Reg.* 1838, Misc., n. 133; *Fol. Orch.*, n. 97; *P. Wageneriana*, Kl. in *Allg. Gartenz.* 1852.—Mexico, Venezuela, Loddiges.

W. B. Hemsley.

A LOCOMOTIVE DICOTYLEDON.

ALMOST every one is interested in the various movements exhibited by plants, whether it be the more perceptible and more easily seen movements of the leaves of such plants as the Venus' Fly-trap, Sensitive Plant, Telegraph Plant, &c., the motion of such microscopic plants as Volvox, Gonium, Oscillatoria, &c., or the less perceptible movements of the root, stem, and leaves, which Darwin has recently shown to be universal among plants—all alike are interesting: indeed, the whole subject is full of interest, and still offers a wide field for research.

So far as has been generally known hitherto, the power of voluntary locomotion from place to place is confined to members of the lower orders of Cryptogamic plants—viz., Algæ and Fungi; but an interesting case of voluntary locomotion among Dicotyledonous plants, in a species of *Loranthus*, has been discovered by Dr. G. Watt, of the Educational Department, Bengal Lower Provinces.

It is only whilst the seed is germinating that the motion takes place, but the mode of travelling is very peculiar, and quite different from that of any other plant known to the writer.

The *Loranthus*, which, according to Dr. Watt, is *L. globosus*, Roxb., though I doubt this being the correct identification, is a native of Bengal, and like all other members of the genus is parasitical, and grows upon a few evergreen trees, particularly upon some species of Memecylon. The fruit, like that of the common Mistletoe and nearly all the other members of this order, consists of a mass of a very viscid pulp surrounding a single seed, and on separating from the parent plant adheres, by reason of its viscosity, to whatever it may chance to fall upon, and after a time commences to germinate. It is only during the first stage of germination that the motion about to be described takes place, and it is evident that the power of being able to move about is to enable the plant to find a suitable place to grow upon. The radicle at first grows out, and when it has grown to about an inch in length it develops upon its extremity a flattened disc, the radicle then curves about until the disc is applied to any object that is near at hand. If the spot upon which the disc has fastened is suitable for the further development of the plant germination continues, and no locomotion takes place; but if, on the other hand, the spot should not be a favourable one, the germinating embryo has the power of changing its position. This is accomplished by the adhesive radicle raising the seed and advancing it to another spot; or, to make the process

plainer, the disc at the end of the radicle adheres very tightly to whatever it is applied to; the radicle itself straightens and tears the viscid berry away from whatever it has adhered to, and raises it in the air. The radicle then again curves, and the berry is carried by it to another spot, where it adheres again. The disc then releases itself, and by the curving about of the radicle is advanced to another spot, where it again fixes itself. This, Dr. Watt says, he has seen repeated several times, so that to a certain extent the young embryo, still within the seed, moves about. It seems to select certain places in preference to others, particularly the leaves, which in the Memecylon are evergreen and very dense. The berries on falling are almost certain to alight upon leaves, and although many germinate there, they have been observed to move off the leaves on to the stems, and finally fasten there.

The above account was kindly given to me by Dr. Watt, who assured me he had watched the movements many times. Although a good deal has been written about the germination and growth of *Viscum* and *Loranthus*,* no case of locomotion similar to that above described appears to have been detected—at least, I can find no record of such an occurrence, and I believe the only record of the above case hitherto published is a very brief notice of it given by Dr. Watt in his *First Step in Botany*, of which there is an English as well as Bengali edition. The movements of the radicle are, of course, due to nutation, which, as lately shown by Darwin, seems to be almost, if not quite, an universal and necessary factor in the process of vegetable growth. The radicle in curving towards an object on which it intends to fasten its disc (as described to me by Dr. Watt), makes a series of rotatory movements—that is to say, the disc describes a series of small circles in the air, approaching the object on which it intends to fasten more and more nearly with each successive circle, until finally it reaches the object and becomes fixed; the same process being repeated when the berry is raised and advanced to another spot. In reference to the above, Dr. Masters directed my attention to an article by Mr. Holland upon Primrose seedlings, which was published in the *Gardeners' Chronicle* for 1871, p. 1580, with a woodcut, under the delectable title of "Morsus Diaboli." In this article the tigellum (the stem below the seed-leaves) of Primula is described as elongating to a very considerable degree, and after the development of two or three proper leaves bending towards the earth, the young plant meanwhile producing from the base of each leaf a single stout root which strikes the ground, enters it, and with its *confrères* forms a new and adventitious root system, whereby the young plant is hereafter nourished, the original and true root, together with the tigellum, dying away, and thus producing a pre-morse root. Although the young Primrose is removed, by the bending of its tigellum, to a short distance from the place where it first commenced to germinate, still this is quite different from the case of the *Loranthus* above described, and it would be interesting to know from further experiments if the Primrose seedling appears to select any one spot within the radius of its tigellum in preference to others. *N. E. Brown.*

HOLWOOD HOUSE.

It gratifies romantic minds—and most minds are more or less romantic—to visit places of historic interest; and with that object I made my way across Hayes Common towards the spot where Holwood House now stands, and where Julius Cæsar, and William Pitt, and several other men of eminence, "pitched their tents," each in their day.

Mr. Pitt was born in the little village of Hayes, close to Hayes Common, at the house of his illustrious father, in 1759. Holwood is just two miles distant across Hayes Common and Keston Common, the park pales skirting the narrow part of the latter, and forming its boundary. The ground gradually rises the whole distance till the sites of the house and camp are reached; and here Julius Cæsar's eagle eye looked from the highest ground in the neighbourhood over a pleasant part of Kent and Surrey as far as the city called by the Romans Londinum. The Prætorium was not built till afterwards, or Cæsar would have seen it standing on exactly the same site where,

* See Griffith, in *Trans. Linn. Soc.* xviii., p. 78; Loudon, *Arboretum et Fruticetum*, ii., p. 1024; Scott, in *Journ. of the Agricultural and Horticultural Soc. of Bengal*, ii., p. 257, &c.