

## NOTES ON A COLONY OF EPIPACTIS IN THE SUSSEX WEALD

By J. T. H. KNIGHT

The colony occurs in a copse near Horsham on the sandy marl characteristic of the district to the north of the town.

The copse is a mixed one of Oak, Hazel, Hornbeam and conifers on a stiff soil showing the following reaction:—at surface, pH 6.5-7.0; one foot below the surface, pH 7.0-7.5. It is on a steep slope at the bottom of which is a runnel where the soil is very wet.

The species involved are *Epipactis helleborine* (L.) Crantz and *E. purpurata* Sm. and two plants which are putative hybrids between them.

*E. purpurata* is quite common in the district, occurring occasionally under Oak and Hazel, but much more frequently under Hornbeam. It would appear to have spread rapidly westwards during the last thirty years from its first recorded station near Crawley.

On the other hand, *E. helleborine* is by no means as common, occurring sparingly at scattered points on the Hastings Sand (Tilgate Beds) of St. Leonard's Forest. The copse in question is exceptional and is the only habitat in the vicinity in which the author has seen the two species growing together. This is in line with experience elsewhere. Even there, *E. purpurata* is in the majority. Some of the specimens are quite old, showing the characteristic clustering of the flowering stems.

The specimens of *E. helleborine* number five and are quite remarkable. In the first place, they occur on the damp soil near the runnel. With one exception, they are all puny with few drooping flowers and small leaves in two opposite rows on the stem. Careful examination of the flowers refers them to *E. helleborine*. They will be under observation in coming seasons.

Nearby, under conifers, two plants occur which show features suggestive of *Epipactis* × *schulzei* P. Fourn., the hybrid between the above two species. One plant, measuring c. 68 cm., shows typical hybrid vigour when compared with the putative parents in the vicinity. The other is of only moderate size, but is similar in appearance.

The larger hybrid shows the following features:—Stem, leaves, bracts and ovaries are all slightly suffused with purple. The leaves are few and distant (*E. purpurata*), but relatively broad (*E. helleborine*). Their measurements from below upwards are:—3.5 cm. by 2 cm., 6.5 cm. by 4 cm., 9 cm. by 4.5 cm., 10 cm. by 3.5 cm., and 9 cm. by 2.5 cm. They are in two opposite rows on the stem.

The raceme is single, dense, and almost one-sided. The flowers are large (2 cm. in diameter), widely open, and apparently fertile. Wasps have been seen visiting them and the ovaries show swelling within a fortnight. The perianth segments are typical in form and colour of a fairly well pigmented *E. helleborine*. The lateral sepals show an oblique downward sweep (*E. helleborine*). The column is short, the anther sessile and laterally compressed (*E. purpurata*). The rostellum is large (*E. helleborine*) and perched on the tip of a feebly developed keel of the stigma (*E. purpurata*). The fruit capsules are 17 mm. long (*E. purpurata*).

The above mixed characters suggest that the plant is the hybrid *E. helleborine* × *purpurata*. This is a rare plant, but may prove more common than hitherto suspected when plants apparently of *E. purpurata* with large leaves are more critically examined. Although both species are visited by wasps and their flowering periods overlap, the exclusive habitat preferences of *E. purpurata* mitigate the chance of cross-pollination.

The appearance of the specimens of *E. helleborine* permits of two possible explanations. Either they are at the point of extinction in their unusual and, perhaps, unfavourable habitat (cf. Brooke, 1950), or they may be referable to some variety or form. Their bifarious leaves may be of significance when one considers the similar leaves of the putative hybrids. Such specimens are encountered commonly amongst colonies of typical *E. helleborine* and should always be carefully examined to exclude *E. leptochila* (Godfery) Godfery or *E. phyllanthes* G. E. Sm.

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