

## Hardy Species of *Enkianthus* under Cultivation in the Royal Botanic Garden, Edinburgh.

BY

WILLIAM GRANT CRAIB, M.A.,

Lecturer on Forest Botany and Indian Forest Trees  
in the University of Edinburgh.

ATTEMPTS, some years ago, to arrange the herbarium material of *Enkianthus*, and more especially of the *campanulatus* series of the genus, only served to prove that this genus, like so many of its allies, must be studied from living material. Since my transference to Edinburgh my attention has been directed by the Regius Keeper to the material under cultivation in the Royal Botanic Garden.

In spite of the comparatively recent revisions of the genus by Palibini,\* Wilson,† and Schneider,‡ great confusion apparently still exists. The experience of this establishment is not an isolated one. Attempts to purchase *E. cernuus* and *E. subsessilis* direct from Japan have always resulted in the addition to the collection of plants of the *campanulatus* series. Failure, however, to introduce the two species named has resulted in our having here a set of the *campanulatus* series which contains some very distinct plants.

At present only two of the groups of the genus are represented among our hardy plants, viz. the *perulatus* group represented by *E. perulatus* and the *campanulatus* group in which two distinct geographical series may be recognised: (1) the series of true *campanulatus*, with glabrous pistil, all natives of Japan, and (2) the *deflexus* series with hairy pistil, inhabitants of E. Himalaya and W. China.

No difficulty attaches to the recognition of *E. perulatus* or, as it is probably more widely known under cultivation, *E. japonicus*, either from vegetative or from floral characters. Vegetatively probably the most distinctive character is to be found in the course of the petiole with respect to the branchlet. The petiole is adpressed to or at least parallel to the branchlet throughout its length, the lamina alone spreading obliquely

\* Script. Hort. Bot. Petrop., xv, p. 8. † Gard. Chron., xli (1907), p. 311.

‡ Laubholz, ii, p. 519.

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from the branchlet. Another feature is found in the nerves of the lower surface where only the lower part of the midrib is elevated. In flower the shrub may be easily recognised by the terminal umbels of few, white, urn-shaped flowers each with five very prominent nectaries.

*E. subsessilis* (syn. *E. nikoensis*), which is not very common in cultivation, agrees with *E. perulatus* in having white urn-shaped flowers and in the pedicels in fruit being straight. The close, fine reticulation of the leaf affords a useful diagnostic mark, as does also the row of short white erect hairs along the midrib on the upper surface. The flowers again have not got the prominent nectaries, and they are arranged in a raceme and not in an umbel.

As already indicated, the species of the *campanulatus* type may be grouped in two series: (1) the western series which may be referred to as the *deflexus* series after the name of the first described species, and (2) the eastern or true *campanulatus* series. The most reliable character for separating these two groups is found in the pistil, which is hairy in the former and glabrous in the latter. Besides this character we find that plants of the *deflexus* series are not as a rule so bushy as those of the true *campanulatus* series, that the former have larger, coarser leaves and larger flowers, and that the raceme is much more abbreviated. These characters, however, while holding for the majority are by no means absolute, e.g. as will be noted in due course, one of the species of the true *campanulatus* series is in habit very similar to the plants of the other series.

The *deflexus* series is represented here by the well-known *E. Himalayan* plant and, of the more recent introductions, by two of Wilson's Chinese plants, both of which have been referred by their collector to the Himalayan species, as also by some younger plants of still more recent introduction which have not yet flowered. In the absence of flowering material these latter must meanwhile be left out of consideration.

Although I have referred to this series as the *deflexus* series I cannot at present follow Schneider and Wilson in adopting Griffith's name *deflexus* for the Sikkim plant, which is the plant in cultivation. Griffith gave the name *deflexus* to his Bhutan plant, and of his original collection I have seen but poor dried material. Recent collections made in Bhutan by Mr. R. E. Cooper contain specimens of an *Enkianthus* which are exactly similar to Griffith's plant, and since Griffith's and Cooper's material agrees exactly with nothing I have seen from Sikkim I am forced to keep the two plants distinct and to refer to the Sikkim plant as *E. himalaicus*.

Again I cannot agree with Wilson in referring his plants to

either of the two *E. Himalayan* species. The shrubs raised from Wilson's seed flowered here this year, and represent two species which, as pointed out in the key, may be easily distinguished from flower bud characters.

With regard to the true *campanulatus* series, the first difficulty one is faced with is—what is the true plant described by Miquel? or rather, since the present article is concerned with the plants under cultivation here, does our collection contain the plant originally described by Miquel as *Andromeda campanulata*? Miquel gives us a lengthy and precise account of his species, and from that description it is at once evident that our plants with large leaves, large flowers and elongate racemes may be excluded from *E. campanulatus*. This exclusion narrows down our choice to one or possibly two plants which agree with Miquel's description in having the smaller flowers and abbreviated racemes, though both have slightly larger leaves than Miquel describes. But neither of these plants accords with Miquel's diagnosis. Apart from the slightly larger leaves, the flowers do not quite arise with the leaves, the pedicels are shorter, etc. After due consideration I have come to the conclusion that it would not be judicious to regard any one of our plants as *E. campanulatus sensu stricto*. As already remarked, Miquel's description is very full, and until we get a plant which differs less from that description than any of our plants here do, it would not be advisable to use Miquel's specific name.

There is one more very distinct hardy plant in cultivation in this country though it is not yet represented in our collection here, viz. *E. cernuus*. The fimbriate margin of the corolla immediately distinguishes the plant. Allied to this species, if not identical with it, is the recently published *E. Matsudai*, Komatsu. Of *E. Matsudai*, however, I have seen neither specimens nor the published figure, the conclusion as to its affinity or identity being drawn solely from the somewhat generalised description.

There are still several species of the genus of which I have seen no living specimens. Of the *deflexus* series there are the true *E. deflexus* from Bhutan,—*E. brachyphyllus*, *E. chinensis*, *E. Rosthornii* and *E. pauciflorus* from W. China. From experience of the genus in both dried and living specimens I cannot for the present subscribe to the published verdict that *E. chinensis* and *E. brachyphyllus* are synonymous or that they are to be regarded as varieties of a Himalayan species. Nothing can be said of *E. Rosthornii* except that the species is based on quite incomplete material. *E. pauciflorus* with its few flowers should be very distinct, but though at one time in cultivation I have been unable to obtain living specimens. Of the *cernuus*

series there are *E. Matsudai*, which has already been referred to, and *E. nipponicus*, which differs from *E. cernuus* in the relatively shorter corolla and filaments. The genus has been further enlarged by Lévêillé, but the inadequate descriptions provided preclude any remarks on his species unless it be to hazard a guess that some of them are allied to the tender *E. quinqueflorus* while others may belong to the *deflexus* series.

With regard to the cultivation of the various species, it has often been asserted that they are not perfectly hardy and that *E. himalaicus* should be wintered indoors. That is not the experience here.

On the light alluvial soil of these gardens all are perfectly hardy, and as regards the plant of *E. himalaicus*, Professor Balfour informs me he has known that plant for at least twenty years, during which period it has been transplanted frequently and has never been under glass. This year some of the plants in exposed situations had many of their flower buds cut by the exceptional late frosts and persistent cold winds, but vegetatively they were not damaged.

The following key has been based on the plants under cultivation here, and includes only such plants as have flowered during the last two years:—

#### KEY TO THE SPECIES.

Petiole not grooved above, adpressed to or at least parallel to the branchlet throughout its length, midrib (except at base) and lateral nerves not elevated on the lower surface which is polished, flowers white, urn-shaped, fascicled, nectaries very prominent  
*perulatus*.

Petiole grooved above, spreading obliquely from the branchlet, midrib and lateral nerves more or less elevated on the lower surface which is polished or not, corolla cup-shaped to campanulate, red, tinged with red or almost white, nectaries but very slightly prominent.

Ovary and style glabrous (*campanulatus* series).

Undersurface of leaves in addition to the long uniformly rusty hairs on the midrib and lateral nerves thinly covered with shorter adpressed rusty hairs, leaves mostly more or less rhomboid in outline, flowers appearing with the leaves  
*ferrugineus*.

Undersurface of leaves without the rusty adpressed short hairs, leaves mostly lanceolate to oblanceolate or broadly so, flowers appearing shortly after the leaves.

Corolla cup-shaped to almost orbicular . . . *latiflorus*.

Corolla more or less campanulate.

Corolla 11–13 mm. long, the lobes very soon markedly reflexing, pink colour confined to the lobes and veining of the tube or sometimes extending to the tube between the lobes . . . *recurvus*.

Corolla up to 10 mm. long, the lobes not or at length but slightly reflexing.

Corolla pink almost throughout . . . . . *Palibinii*.

Corolla tube pink only on veins or nearly white throughout.

Corolla white nearly throughout, flowers arranged in quite evident racemes . . . . . *pallidiflorus*.

Corolla with pink colour more or less conspicuous.

Flowers arranged in long pendulous racemes, not at all hidden by the foliage . . . . . *pendulus*.

Flowers arranged in fascicle-like racemes, more or less concealed from above by the foliage . . . . . *tectus*.

Ovary and style not glabrous (*deflexus* series).

Flower buds depressed globose to very broadly ovate, broader than long just before expansion, sharp grooves on corolla alternating with the lobes running right down to calyx segments, lower surface of leaf with long coarse scattered hairs on midrib and shorter finer adpressed hairs all over . . . . . *sulcatus*.

Flower buds oblong or obovate-oblong, longer than broad, grooves on corolla alternate with the lobes not extending much more than half-way to the calyx segments.

Undersurface of mature leaves with indumentum as described in *E. sulcatus* . . . . . *himalaicus*.

Mature leaves glabrous or nearly so on undersurface . . . . . *sinohimalaicus*.

#### ADDENDA.

Since the above paper was written L  veill  's herbarium, generously presented by A. K. Bulley, Esq., and Major Lionel de Rothschild, has been received at the Royal Botanic Garden, Edinburgh.

An examination of the type specimens in this herbarium shows :—

1. *E. xanthoxantha*, *E. Dunnii*, and *E. Cavaleriei* belong to the *quinqueflorus* alliance. The material of each of these three species consists of one gathering only, and is insufficient for satisfactorily determining their relationship. Probably *E. Dunnii* and *E. Cavaleriei* are synonymous.

2. *E. cerasiflora* (syn. *Zenobia cerasiflora*) belongs to the *campanulatus* series. In his 'Flore de Kouy-Tcheou' L  veill   reduces *E. Cavaleriei* to *E. cerasiflora*, but the two species really belong to different groups of the genus. There is no indication as to whether *E. cerasiflora* is cultivated or not. If this plant is truly native in Kouy-Tcheou, then the statement in the body of the paper, that all the species of the *campanulatus* series are

natives of Japan, no longer holds. *E. latiflorus* is very near to this species.

3. *Bodinierella Cavaleriei* is founded on an *Enkianthus* of the *deflexus* series, and as the specific name is already occupied in the genus, a new name must be given to the plant :—

**Enkianthus Leveilleanus**, Craib, nom. nov.

*Bodinierella Cavaleriei*, Lévl. in Fedde Rep. Nov. Sp.,  
xii, p. 101 (1913).

Two additional species have been added recently to the outdoor collection here : *E. cernuus* var. *rubens*, a native of Japan, and *E. serrulatus*, a native of W. China.

*E. cernuus* and its variety, as already indicated, are readily distinguished from the species enumerated in the key by their fimbriate corolla lobes. In all the species enumerated in the key the corolla lobes are entire.

*E. serrulatus* differs from the *campanulatus* and the *deflexus* series and agrees with *E. perulatus* in its fascicled flowers, the pedicels of which are straight and erect in fruit. I believe Schneider to be right in regarding this as a distinct species and not as a variety of *E. quinqueflorus*, as originally proposed by Wilson.