

Records
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ALANGIUM

BY

G. H. CAVE and W. W. SMITH.

2. SPECIES NOVÆ PLANTARUM IN HERBARIO
HORTI. REG. CALCUTT. COGNITARUM.

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NOTE ON THE EAST HIMALAYAN SPECIES OF ALANGIUM.

BY

G. H. CAVE and W. W. SMITH.

IN the Flora of British India, Vol. II, p. 743, C. B. Clarke, in dealing with the species of *Marlea* of the Section *Eu-Marlea*, refers all the Indian material to *Marlea begoniaefolia*, Roxb. The alpine specimens collected in Sikkim by Hooker (*Marlea* sp. 2) at an altitude of 6,000—9,000 ft. are separated as var. *alpina*, and distinguished from the type by "the leaves not angular, hairy all over beneath and no tufts in the nerve-axils." In the Calcutta Herbarium Sir George King separated similar specimens in fruit as *Marlea sikkimensis*, King MSS. In Brandis, *Indian Trees* (1906), p. 355, the species is briefly described under the name of *Marlea alpina*, Gamble MSS.—"Sikkim 6-9,000 ft., leaves usually not angled or lobed, fruit $\frac{3}{4}$ in. long, putamen crustaceous, one-seeded, one cell abortive."

Wangerin in his Monograph on Alangiaceæ in "Das Pflanzenreich" IV (1910), 220b., where he includes *Marlea* in *Alangium*, makes no reference to Brandis's note on this new species and refers all the Sikkim Himalayan material seen by him to *Alangium begoniaefolium*, and ignores the varietal name *alpina* given by Clarke to the original Hookerian specimens.

As these early collections of the alpine plant are somewhat incomplete (this is true at least as far as the specimens we have seen) and as *Alangium begoniaefolium* is a variable, wide-spread species (Kameroots, German East Africa, India, Burma, Java, Philippines, China), there was no doubt good reason for doubting the validity of a species very incompletely known, and for treating it as a "geographical race" merely.

Later in *Rec. Bot. Surv. Ind.*, Vol. VI (1912), p. 378, W. W. Smith refers to the question, but beyond giving the measurements of the ripe fruit has no other data to quote as flowers of the high level species were not then available.

Knowing, however, the very different habit of the two trees in the Darjeeling district, one a low level plant and one a high level, the present writers were convinced that a careful comparison of the two at various times of the year would soon bring out the differences between them, and the following note is the result of such observations. Those who know the graceful appearance of the low level plant (*Alangium begoniaefolium*) with its leaves symmetrically arranged in a very beautiful

way cannot fail to remark how different in appearance its high level ally is.

For convenience of comparison the notes are arranged in parallel columns :—

	<i>A. begoniifolium</i> in East Himalaya.	<i>A. alpinum</i> in East Himalaya.
Nomenclature.	Called Palit-kung by the Lepchas. (kung=tree). Called Anowruk by the Pahariyas, in allusion to its use for plough-handles. (Anow=plough-handle, rukh=tree). The style of its branching makes wood properly angled for this purpose.	Called Palit-nyok by the Lepchas. (nyok = sluggish or dilatory—an allusion to its later leafage and flowering.) No Pahariya name that we can learn.
Habitat.	Found from the lowest valleys up to 5,000 ft. [up to 6,000 ft. in West Himalaya].	Found from 6,000 ft. to 9,000 ft.
Habit.	Tall tree, up to 60 ft., usually erect. Branches horizontal and regularly angled from node to node. The leaves hang almost perpendicularly from the branches. A very rank growth of branches is made by young trees and by the growing parts of older ones. From this growth in the Spring short secondary flowering growths spring. Deciduous in the cold season . . .	Erect tree, up to 40 ft. Branches ascending and not so angled from node to node, leaves not hanging perpendicularly and the two kinds of growth not so differentiated. Deciduous till late Spring.
Leaves.	Leaves on primary growths very large (up to 10 in. × 8 in.) and often very angled, sometimes irregularly so. Tufts of hairs in axils of nerves and scattered hair along nerves at back of leaves. But the leaf character appears to be somewhat unreliable in both; the tufts seem to be absent or to disappear, and to be less noticeable on the leaves of the secondary growth. Leaves in secondary growth not so large and not so distinctly angled, but always more so than the leaves of the other species.	Leaves seldom much angled and fairly regular in size (6 in. × 4 in.) Spare hair all over the veins at back of leaf.

	<i>A. begoniaefolium</i> in East Himalaya.	<i>A. alpinum</i> in East Himalaya.
Inflorescence.	Inflorescence stiff short (up to 2 in.) much and regularly branched, with many flowers.	Inflorescence lax and longer (3 in.—4 in.) with only about 3 flowers, their pedicels arising from a point almost common to all, and lying almost parallel.
Flower.	Stamen shaggy towards the base which is hollowed like a spoon; bearded below anther.	Flowers larger. Bud much longer. Stamen nearly glabrous, not bearded below anther, a few hairs at the very base; base not hollowed.
Fruit.	Fruit rather ovate than ellipsoid in early stages.	Fruit at first elongate turbinate, afterwards compressed ellipsoid.
	Longitudinal ridges absent or somewhat indistinct.	Longitudinal ridges distinct, especially at base.
	Fruit smaller, 1—1.4 cm. long, 6 mm. broad.	Fruit larger, 1.8—2 cm. long, 7—9 mm. broad.
	Ripens in July-August	Ripens in October-November.
	In section ovate	In section oblong.
	In cross section hardly compressed .	In cross section much flattened.
	Style base often persistent and protruding beyond calyx tube.	Apex of ripe fruit usually with star-shaped hollow.
	Testa thicker and harder, brittle	Testa thinner, more like parchment splits off in 2 layers.
	Distinctly 2-celled, 1 cell larger than the other.	Only 1-celled.
	Albumen granulated	Albumen somewhat convoluted.
Embryo not distinct and not easily separable.	Embryo distinct and easily separable.	
.....	The veining of the cotyledons, which can also be easily separated the one from the other, is very distinct.	

The habits of these two plants are very distinct. *Alangium begoniaefolium* has a very striking appearance in consequence of its horizontal zig-zag branches and large, pendent, angled leaves. Its outline recalls to one's mind that of the old-fashioned sheeted turnip headed ghost. The upper level plant is not particularly distinct in habit from the

other forest trees and at a distance might be taken for a tree such as a *Styrax*, for instance. There is no mistaking *A. begoniaefolium*.

Two distinct types of growth with differentiated leaves occur in the lower but not in the upper species. The inflorescence is a very good character, being short and stout, much branched and many flowered in the lower, and long, lax, semi-pendent and very few flowered in the higher plant. The base of the stamen is a noticeable character, and one of importance in the genus. However in *A. Alpinum*, while in some cases the stamens are glabrous, in other specimens dissected there is a distinctly hairy base, but not comparable to what obtains in the stamens of the other species. The fruit is (after the habit of the tree) the most marked point of difference.

It must, however, be recognised that the foregoing description of *A. begoniaefolium* applies only to the East Himalayan form of that species where the angularity of the leaves and the peculiar 'set' of the leafy lower branches are always prominent. Pronounced angularity of leaf occurs more rarely in the 'general' species — *integerrima vel rarius apicem versus leviter lobata* (Wangerin, Alang, p. 20). Thus the shape of the leaf, its hairiness and the paucity of flowers in the inflorescence are not in themselves sufficient to discriminate *A. alpinum*; cf. description of *A. begoniaefolium*, Wangerin, l. c. p. 20—21 *passim*. But the shape and size of the fruit and the almost glabrous stamens are additional characters and the sum of these seems to us sufficient justification for the separation of the alpine plant as a distinct species. The differences are not such as can be attributed merely to the effect of altitude; no intermediates between the two species were observed nor do their habitats in the East Himalaya overlap. The zone of cultivation in this region may however be a factor influencing the distribution.

[A diagnosis of *A. alpinum* is given below. Our thanks are due to J. S. Gamble, Esq., C.I.E., F.R.S., for the loan of his herbarium material of Alangium and to Major A. T. Gage, I.M.S., Director of the Botanical Survey, who has seen the paper through the press.]

Alangium alpinum (Clarke pro var, sub *Marlea*) Smith et Cave. Comb. nov. et descript. ampl.

Species affinis *Alangio begoniaefolio* (Roxb.) Baill. sed arboris habitu, foliis minoribus, minus angulatis, inflorescentiis laxioribus longioribus paucifloris, staminum filamentis fere glabris, fructu majore, multum compresso, semine solitario, differt.

Arbor erecta, ad 12 m. alta, decidua, ramis ascendentibus, paulo inter nodos angulatis. Folia petiolata; lamina suborbicularis vel ovata vel oblongo-ovata, apice ± acuminata, basi rotundata vel subtruncata vel

cordatula, coriacea, margine undulata, vix angulata, supra glabra, infra nunc ± dense pilosa in nervis venisque, nunc fere glabra, nervise petiolo 5-7-palmatim currentibus supra vix, subtus valde prominentibus, nervis secundariis inter se subparallelis; petiolus circ. 2 cm. longus. Inflorescentiæ axillares laxae, 4-10 cm. longae, saepius 3-florae; pedicelli 1 cm. longi vel ultra, in fructu ad 3 cm. elongati; bracteae deciduae lineares 1 mm. longae vel ultra; calyx et corolla eis *A. begoniaefolii* simillimi sed paulo majores. Staminum filamenta fere glabra, nec infraantheras barbata, 5-6 mm. longa; antherae ± 1 cm. longae. Fructus primo elongato-turbinatus, deinde compresso-ellipsoideus, ad 20 mm. longus, 8-9 mm. latus, longitudinaliter sulcis percursus, multo compressus, semine unico; testa membranacea; albumen paulo convolutum.

Eastern Himalaya:—Lachen, Sikkim, 7-9,000 ft., Phadonchen, Sikkim, 5,000 ft., *Hooker* in Herb. Kew. et Herb. Calc.; *Prain's Coll.*, 331 in Herb. Calc.; Choongtam, Sikkim, *Hooker* in Herb., Kew.; Sikkim, *King* in Herb. Calc. without locality or number; Sikkim, *Thomson* in Herb. Calc. without number; Sikkim, in Herb. Calc. without number; Senchal, Darjeeling District, 7,000 ft.; *Gamble* 2440 A in Herb. Gamble. Rangbul, Darjeeling District, 7,000 ft., *Lace* Tashiding Forest 2,293 in Herb. Calc.; *Kurz*, Darjeeling, 7,000 ft. in Herb. Calc., *Gamble* 6,950 in Herb. Gamble. Towards Chuka, Bhutan, damp woods, 6,000 ft., *Griffith* 1,097 in Herb. Kew. (Kew Distr. 3,389).

Synonymy:—

Marlea begoniaefolia, Roxb. var. *alpina* ex C. B. Clarke in Fl. Brit. Ind. II, p. 743. *Marlea sikkimensis*, King MSS. in Herb. Calc. *Marlea alpina*, Gamble MSS. ex Brandis in Indian Trees, p. 355. *Alangium begoniaefolium* (Roxb.) Baill. pro minima parte — Speciminibus Sikkimensibus alpinis — in Wangerin, Alangiaceae, p. 21.

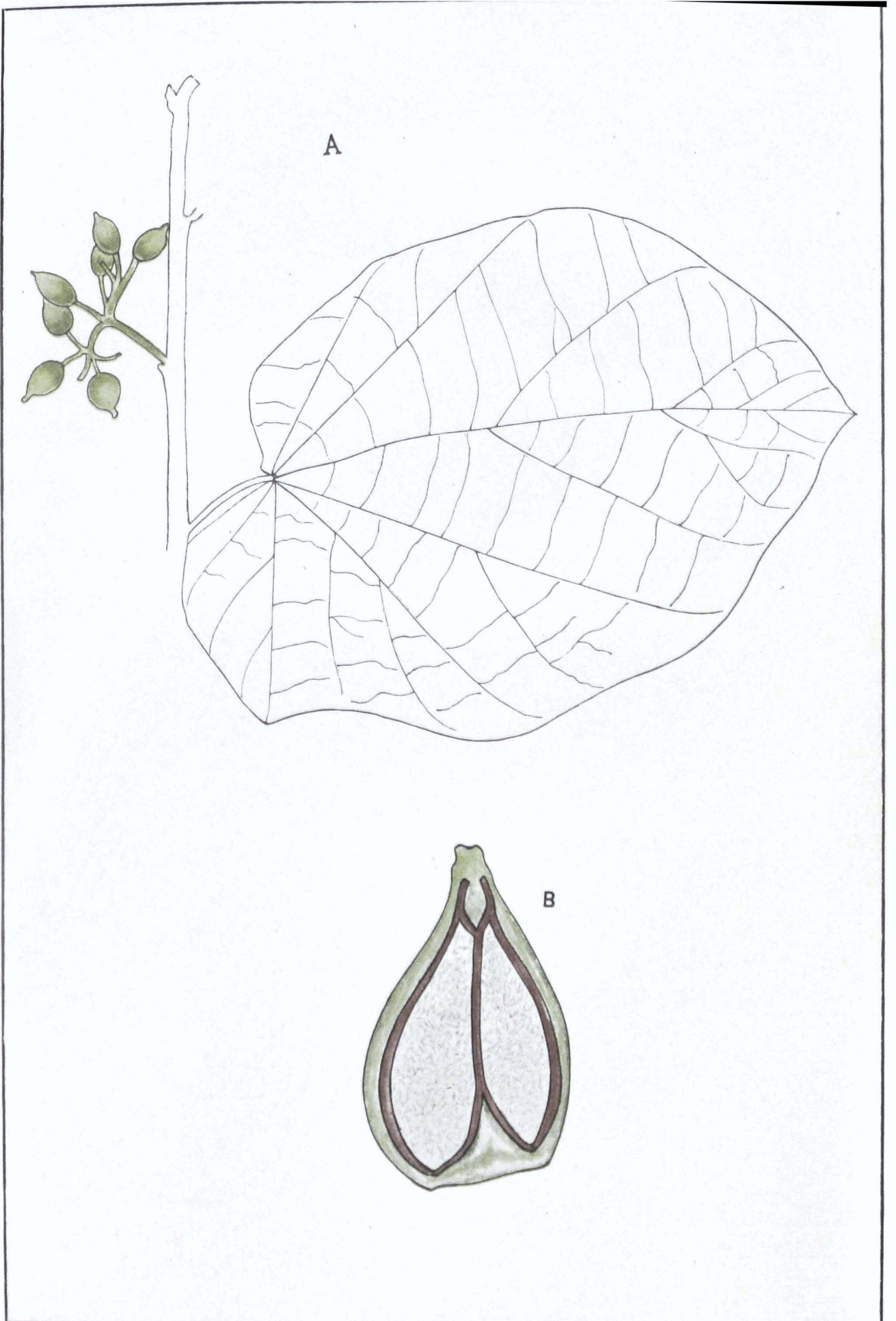
Description of Plates.

Plate I.—*Marlea begoniæfolia* Roxb

- A. Leaf, inflorescence with fruit natural size but not ripe. Collected at Reang 4th July $\times \frac{3}{4}$.
- B. Ripe fruit in section, 3rd August $\times 4$.

Plate II. *Marlea alpina*. *Smith et Cave*

- A. Leaf, inflorescence with fruit natural size but not ripe. Collected on Senchal, 11th July. $\times \frac{1}{2}$.
- B. Ripe fruit, 19th October $\times 1$.
- C. „ „ in section $\times 1$.
- D, E, Stone in section $\times 4$.
- F. Embryo. $\times 4$.



A

B

