

# Records

of the

# Botanical Survey of India

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# SOME ADDITIONS TO THE FLORA OF THE EASTERN HIMALAYA.

BY *W. W. SMITH.*

Most of the plants referred to in the following pages formed part of a collection made in May-June 1905 by J. C. White, Esq., C.I.E., at that time Political Officer in Sikkim, during a tour along the borders of Tibet and Bhutan wherein was included a visit to Pari and Punakha. This collection he generously handed over to the Herbarium of the Royal Botanic Garden, Sibpur; and he supplemented it by a further collection made in 1906-07 in Eastern Bhutan.

Of the flora of Bhutan very little is known, and these collections are consequently of considerable interest. The flora of the western side of Bhutan probably bears a close resemblance to the adjoining parts of Sikkim and Chumbi; and these collections support the view. At the same time many new species are to be got in this western portion and further east, Bhutan will no doubt eventually give a rich yield especially of alpine forms.

The present collections contain several new species and also plants which have not come to light for over 50 years—plants collected by Griffith and by Booth, who are the chief and almost the only botanists who have ever been in the Bhutan Highlands. In the genus *Primula* besides the resurrection of *Primula mollis* Booth, two new species have come to light, a description of which is given below.

I have included some new species from Sikkim.

## ORDER—**RANUNCULACEÆ.**

***Calathodes palmata* H.f. & T.**

Lingji, Bhutan, 7,500 ft., No. 45 *White!*

Rare in Sikkim. An addition to the flora of Bhutan.

## ORDER—CRUCIFERÆ.

**Eutrema himalaicum** H. f. & T.

No. 243 *White!*

An addition to the flora of Chumbi.

**Erysimum longisiliquum** H. f. & T.

Byagha, No. 177 *White!*

An addition to the flora of Bhutan.

**Lepidium ruderales** Linn.

Dongdong, Bhutan; *White!*

An addition to the flora of Bhutan.

## ORDER—BURSERACEÆ.

**Garuga Gamblei** King, nomen tantum in Herb. Horti Bot. Calcuttensis, sp. nov.

Species *Garuga pinnata* Roxb. affinis; paniculis longis gracilibus, floribus minoribus, filamentis ovarioque glabris, fructu multo minore statim distincta.

Arbor magna; descriptio abest. Apex ramorum ut in *G. pinnata* sed glabrior; foliorum insertiones et cicatrices et caulis medulla persimiles. *Folia* 30-45 cm. longa, alterna, exstipulata, imparipinnata, ramulorum apices versus conferta, adulta saltem cum rachide tereti glaberrima, juniora non visa; *foliola* sæpius 6-8-juga, 5-15 cm. longa, 3.5-5 cm. lata, stipellis nullis, subsessilia vel brevissime petiolulata (2-3 mm.), ovato-oblonga, anguste acuminata, basi paululum cordata vel obtusa, margine crenato-serrata, membranacea, nervis lateralibus  $\pm 20$  paribus prominentibus. *Panicula* novellorum ramulorum apices versus confertæ, 20-30 cm. longæ, in fructu ad 40 cm., racemose-ramosæ, ramulis extremis cymosis; panicula dimidium inferius nudum, glabrum, superius tomentosum, bracteolis 5-10 mm. longis lanceolatis sessilibus serius deciduis. *Pedicella* 2-3 mm. longæ. *Calycis* 2 mm. longi extus tomentelli vel puberuli tubus intus glaberrimus, 10-crenatus; lobi quinque triangulares, tubum subæquantes, intus glabri. *Petala* 5, 3 mm. longa, ovata, patenti-recurva, extus tomentella, intus glabra.

*Stamina* 10, ad disci marginem inserta; filamenta episeptalia epipetalibus longiora, subulata, glabra, petalorum dimidium superantia. *Ovarium* 1 mm. longum, 5-loculare, glabrum vel minute-pubescent, stylo robusto glabro 2 mm. longo, stigmatibus capitato 5-lobato. *Fructus* 5 mm. diametens, drupa, pyrenis sæpius 1-2 subglobosis lignosis, testa crustacea.

Sikkim Himalaya at an elevation of 1,500-5,000 ft. This species of *Garuga* seems to have been collected first in Sikkim by the late Sir George King in 1875, (No. 2385 King! 1,500 ft., without precise locality). On the sheet is written in his handwriting " ? *Garuga* but not *pinnata*; get flowers." The next record is that of Mr. J. S. Gamble—Chumbati, 2,500 ft., No. 600! Then Dungboo, King's native collector, supplied specimens from Ryang Jhora 2,000 ft., marked " Big tree, 50 ft., fruit; Dungboo says flowers in March without leaves." All these are in mature fruit only and no flowers evidently had been secured, when some years later specimens were sent to Kew for comparison with the material there. These were returned with the following note by Dr. Stapf attached to Gamble No. 600. " I think this is a new species of *Garuga*. It differs from *G. pinnata* in the long slender panicles, in the small fruit which is supported by the persistent calyx, the tube of which is much shorter than in *G. pinnata*. We have exactly the same plant from the Nilgherries (*Gardener*) and *Hb. Wight* 398-2; and possibly also *Wall. H.* 1-8485 D. belongs to it (in flower only!)"

On examining the specimens of *Garuga* in the Calcutta Herbarium I find one Nilgherry sheet—no collector's name or number—which has the long panicles and small fruits of the Sikkim plant. There are unfortunately no flowers. Our Wallichian sheet 8485 is F. and is an undoubted *Garuga pinnata* Roxb. collected according to the Catalogue in the Calcutta Botanic Garden. 8485 D. according to the same Catalogue is a mixture of Hardwar and Sylhet specimens. Evidently no flowering specimens were secured by Sir George King and the species remained unpublished. This year the native collectors of the Lloyd Botanic Garden, Darjeeling, have brought in (under No. 4169 *Kari*!) flowering specimens of a tall tree collected near Sittong in the month of April at 5,000 ft. which in leaf and inflorescence are identical with Gamble No. 600. The flower is that of *Garuga* but very distinct from that of *Garuga pinnata*. In the absence of flowers it is difficult to say whether the Nilgherry and certain small fruited Javan specimens are conspecific. I think it better meanwhile to regard the distribution

of the species as Sikkim. In the flowering specimens now available the leaflets are dropping, so that Dungboo's statement that at flowering time the tree is more or less bare is probably correct.

#### ORDER—CELASTRACEÆ.

##### ***Euonymus tibeticus* W. W. Smith, sp. nov.**

*Euonymo grandifloro* Wall. affinis pedunculis trifloris, floribus tetrameris; sed foliis minoribus lanceolatis statim distincta.

Arboris descriptio deest. *Rami* virides, glaberrimi, tetragoni. *Folia* usque ad 3 cm. longa, ad 7 mm. lata, opposita, longe-lanceolata, subobtusata, basi cuneata, ad 3 mm. petiolata, obscure crenulata, nervis obscuris. *Pedunculi* 1-1.5 cm. longi, aggregati, plerumque 2-3-flori, pedicellis 5-6 mm. longis. *Calyx* 4-fidus, 2 mm. longus, lobis ovatis obtusis patentibus. *Petala* 4, 2 mm. longa, suborbicularia, subintegra. *Stamina* 4, supra discum inserta. *Discus* carnosus, amplus, margine undulatus. *Ovarium* cum disco confluens, 4-loculare; stylus brevis, stigmatate 4-lobo; ovula in loculo 2; fructus immaturus ei *E. grandiflori* similis, globosus, 4-angulatus, glaber.

Lhaxhang, Tibet, at an elevation of 11,500 feet, No. 87 *White!*

#### ORDER—ROSACEÆ.

##### ***Spenceria ramalana* Trimen.**

Among the Bhutan specimens is a species of *Spenceria* which I am unable to separate specifically from the Chinese plant. The Bhutan plant is shorter, has smaller leaves and flowers than the single type of *S. ramalana* in the Calcutta Herbarium, but there is no great distinction except perhaps in the number of stamens, which is about one-half of what are present in the described type which has thirty. The small size of the flower may quite well account for this. The Bhutan specimen on comparison with the types at Kew is taken to be very near, if not actually, *S. ramalana*. This monotypic genus has been recorded previously only from China. (*Gill, Delavay* No. 214, *Pratt* Nos. 588, 701, *Soulié* Nos. 658, 894, *Potanin, Hosie*.) and is an interesting addition to the flora of the Indian area. The plant was collected near Dong-La, Eastern Bhutan.

**Cydonia cathayensis** Hemsl.

Near Bongthang(?) No. 159 *White!*

An addition to the Flora of Bhutan. It appears to be variable in the degree of ferruginous pubescence on the leaves, and in the size of the fruit. Even the mature leaves in this specimen retain a thick covering of ferruginous tomentum.

**Pirus bhutanica** W. W. Smith, sp. nov.

Species sectionis *Aria*, inter himalaicas *Piro vestita* affinis; foliis parvis trilobis, inter alia signa statim distincta.

Arboris descriptio deest. *Caulis* primo dense pubescens, deinde glabrescens. *Folia* petiolata; petiolus 1-1.5 cm. longus, pubescens; lamina 2.5-4.5 cm. longa, 2-3 cm. lata, triloba ad medium, lobis ovatis vel ellipticis acutiusculis serratis, supra paucis sparsis capillis, infra rugosula, venulis plus minus pubescentibus, basi cuneata, stipulis 5-10 mm. longis lanceolatis plus minus persistentibus instructa. *Flores* 4-8, in ramulis lateralibus corymbosi, fere fasciculati; pedicelli ad 2 cm. longi, tomentosi. *Calycis* tomentosi tubus 3 mm. longus, urceolatus; lobi quinque ad 3 mm. longi, triangulares, obtusi, reflexi. *Petala* 7-8 mm. longa, orbicularia, intra albo-lanata. *Stamina* 15 vel plura. *Styli* 5, basi lanati; *ovarium* 5-loculare; *fructus* immaturus.

Tibet and Bhutan Himalaya, near Lhakhang Gumpa, *White!* The structure of the flower makes this an ally of *Pirus vestita* Wall; the leaves are entirely different.

## ORDER—SAXIFRAGACEÆ.

**Ribes Grossularia** Linn.

Lhakhang valley, 11,500 feet, No. 70 *White!*

An addition to the Flora of Tibet.

**Saxifraga Gageana** W. W. Smith, sp. nov.

Species ad sectionem *Boraphilarum* spectans; habitu, foliis, capsula subvesiculosa affinis; sed floribus rubris, ovario planissimo facile distincta.

*Radix* repens, gracilis. *Caulis* ad 8 cm. longus, flexuosus, sæpius solitarius, *Saxifraga micrantha* cauli depauperatæ similis, subglaber

paucis sparsis capillis albis. *Folia radicalia* 2-4; lamina 1.5-3 cm. longa, petiolo ad 2 cm. longo fragili, minora spathulata integra, majora ovata grosse dentata fere lobata; *folia caulina* 1-2, 1-2 cm. longa, 1-2 cm. lata, late ovata, interdum latiora quam longa, sessilia, grosse dentata, fere glabra paucis albis capillis, *Saxifragæ pallidæ* more carnosula. *Pedicelli* 8-15 mm. longi. *Flores* 1-3, terminales et axillares; interdum subflore terminali alter parvula bractea lanceolata. *Torus* latus. *Sepala* 5, patentia, 5 mm. longa, viridia, ovario paulum adnata, lobis 3 mm. longis 2 mm. latis ovato-oblongis obtusis glabris. *Petala* 3.5-4 mm. longa, patentia, calycem paulum excedentia, lobis obovatis integris vel subemarginatis rubris. *Stamina* 10, dimidium corollæ æquantia, filamentis purpureis. *Ovarium* disciforme, 1 mm. altum, diametro 5 mm. × 4 mm., carpellis margine subtrilobatis vesiculosus viridibus; styli ad 1 mm. longi, sæpius minores, virides, apice purpureo, paralleli, interdum adpressi sed usque ad basin distincti. *Semina* non visa.

Chola Range, East Sikkim at 14-15,000 ft., Nos. 3809, 3989, *Smith!* A species very distinct from all the other Himalayan saxifrages and remarkable for its disc-like ovary.

#### ORDER - UMBELLIFERÆ.

##### *Pimpinella radiata* W. W. Smith, sp. nov.

Glabrâ. *Folia* pinnata vel bipinnata, segmentis omnium foliorum ovatis vel ovatis-lanceolatis acutis serratis. *Pedunculi* in fructu ad 3 cm. longi, rigidi, circumradiati, pedicellis brevissimis 1 mm. longis vel interdum nullis. *Fructus* ovatus. *Pimpinellæ Hookeri* valde affinis est.

Sikkim Himalaya at Yeumtong, 11,000 feet, No. 992, *Gammie!* and Sebu Valley, 13,000 feet, *Gammie!*

The three species—*Pimpinella Hookeri* Clarke, *P. tenera* Benth. and *P. radiata* sp. nov.—form a natural group among the Himalayan Pimpinellas. The most striking common feature is the frequency of excessively elongate tails to the petals. This is not uniformly present, as Clarke points out (Fl. Brit. India Vol. II, p. 686) in the case of *P. Hookeri* and *P. tenera* nor in *P. radiata* as I have myself noted. *P. radiata* is closely allied to *P. Hookeri* and is distinguished by the peculiar character of the umbel which, when the fruit is mature, shows a circum-



radiate arrangement of *rigid* peduncles terminated by 1-3 almost sessile clustered fruits which are somewhat longer than broad. Lower leaves are not whitened beneath; nor are the upper leaves reduced to linear segments as in *P. Hookeri*.

Another plant occurring both in the Sikkim and Bhutan Himalaya presents a very different appearance to *Pimpinella Hookeri* but is I believe referable to that species. In this variety all the leaves have the segments very long narrow-linear. The characters of flower and fruit are quite according to type. I have found the plant in the field mixed with true *P. Hookeri* and I have no doubt it is merely a variety. I have named it *P. Hookeri* Benth. var. *graminifolia* (var. nov.) Bhutan Himalaya at Pun-ka-bee-see-moo No. 247 *Dungboo!* Sikkim Himalaya at Yakcha, Lachung Valley, 10,000 ft., No. 2714 *Smith and Cave!* Zemu Valley, 9-10,000 ft., *Smith and Cave!* also *Gammie!* and *King's Coll!* without definite locality.

#### ORDER—RUBIACEÆ.

##### *Uncaria macrophylla* Wall.

At Rungbee, 1,600 ft., No. 266 *Smith!* an addition to the Flora of Sikkim. Distribution—North Bengal, Rhutan, Assam, Burma.

#### ORDER—COMPOSITÆ.

##### *Senecio arnicoides* Wall.

Above Lachen, 12,000 ft., No. 3018 *Ribu!*

An addition to the Flora of Sikkim. A Central and Western Himalayan plant, not previously recorded from the Eastern Himalayas and apparently very rare there.

#### ORDER—CAMPANULACEÆ.

##### *Cyananthus Hookeri* Clarke.

This species was originally described from specimens in ripe fruit only, collected by Sir Joseph Hooker in East Nepal. More material is now to hand including flowering specimens from Sikkim, Tibet and Chumbi. The corolla is very small for the genus, up to 7 mm.—only half that of its nearest ally, *C. inflatus* H. f. & T.,—narrow tubular,

slightly exceeding the calyx, light blue in colour. A further point of distinction is its tetramery. In all the Tibet and Chumbi specimens dissected, the calyx and corolla were four-lobed; in the fruiting Sikkim specimens the ovary is usually four-valved, and the calyx with four large lobes and a small one. Its distribution is about as extensive as is known for any *Cyananthus*:—Wallanchoon, Nepal, 13,000 ft., *Hooker*; Kup-Chee, Chumbi, No. 182 *King's Collector*! Sikkim, 13,000 ft., *Pantling*! Sebu Valley, Sikkim, 15,500 ft., No. 1155 *Gammie*! Numa, Tibet, *Stewart*! Phembu La, 10 miles N. of Lhasa, *Walton*!

var. *hispidus* Franch. Nepal, No. 175 *Scully*! Tongolo, Eastern Tibet, No. 672 *Soulié*! West Szechuen, China, No. 454 *Pratt*!

#### ORDER—VACCINIACEÆ.

##### *Pentapterygium sikkimense* W. W. Smith, sp. nov.

Species *Pentapterygio serpenti* Klotzsch, affinis; sed foliis late ellipticis et floribus parvis facile distinguitur.

*Frutex* epiphyticus; habitus *P. serpenti*. *Caulis* vagans, ramosus, pendulus vel serpens, strigoso-hispidus, laxe foliosus. *Folia* subsessilia, 2-3 cm. longa, 1.5 cm. lata, elliptica, apice rotundata vel obtusa, mucrone brevi, basi obtuso-cuneata, subintegra, apice serrulata, nervis 8-10 paribus supra clare reticulatis. *Flores* parvi, solitarii vel 2-3 fasciculati; pedicelli 5 mm. longi, glandulo-pubescentes. *Calyx* 5 mm. longus, ad medium fissus, turbinato-globosus, 5-pterus, subglaber, lobis acutis triangularibus persistentibus. *Corolla* 1 cm. longa, tubulosa, 5-gona, ad sextam partem lobata, glabra, rubra; lobi sublineares, acuti. *Stamina* 10, inclusa, corollæ tubo fere æquilonga, filamentis brevissimis liberis; antheræ cohærentes, loculis muticis in tubulos tenuissimos strictos loculis paulo longiores rimis elongatis dehiscentes productis. *Ovarium* 5-loculare, stylo filiformi, stigmate truncatulo. *Fructus* immaturus carnosus ad 7 mm. longus.

Sikkim:—Lachung Valley, 7,500 ft., No. 1216, *Gammie*! Tonglo, 7,500 ft., *Rogers*!

#### ORDER—PRIMULACEÆ.

##### *Primula Whitei* W. W. Smith, sp. nov.

Hæc species ad *Petiolaræ* Pax, sine dubio pertinet; verisimiliter affinis *Primulæ odontocalyci* (Franch.) Pax, ex China centrali (quæ

species Herbariis Kewensi et Calcuttensi deficitur) sed foliis exterioribus squamis reductis et farinosis, scapo brevi, lobis calycis oblongis satis distincta est.

Glabra, farinosa. *Folia* interiora  $\pm 10$ , tenuiter membranacea, in petiolum mediocrem alatum attenuata, ad 7 cm. longa, ad 2 cm. lata, elliptica, ambitu obtusa, basin versus cuneata, leviter eroso-denticulata; *folia* exteriora  $\pm 20$ , ad 2.5 cm.  $\times$  1.5 cm., squamiformi-reducta, coriacea et intus valde farinosa, arcte compacta. *Scapus* brevis, 1.5-2 cm. longus, flores 5-10 gerens. *Bractea* 6-10, ad 1.5 cm. longæ, lineares *Flores* longiuscule pedicellati; pedicelli ad 4 cm. longi, quam folia breviores. *Calyx* ad 8 mm. longus, tubulosus, *Primula petiolaris* calyce robustior, coriaceus, ad medium fissus; lobi oblongi, obtusi, ad 3 mm. lati, paulum divergentes, apice 3-5-dentati. *Corolla* probabiliter purpureæ tubus calycem ad 4 mm. superans, ad 12 mm. longus, infundibuliformis, ore annulatus; limbus 2-2.25 cm. diametens; lobi obcordati, paulum dentati. *Capsula* tubo calycis dilatato inclusa; seminibus immaturis.

Pêle-la, Bhutan, at an elevation of 10,100 feet. 122 *White!*

### **Primula Jonarduni** W. W. Smith, sp. nov.

Ab omnibus indicis Primulis foliis bracteisque facile distincta. Ad *Farinosas* Pax, est affinitas.

Parvula, glabra, farinosa. *Rhizoma* robustum, ad 3 cm. persistens, vetustis foliis in apice vestitum, ramos emittens. *Folia* parva 8-12 mm. longa, 4-5 mm. lata, petiolata, ovata, obtusa, integra, subtus farinosa, coriacea, etiam matura revoluta; cutis rugosa laxissima translucida; petiolus arcte distinctus, ad 5 mm. longus, alatus. *Scapus* ad 5 mm. longus, fructu duplo porrectus, pubescens. *Bractea* 2-3, ad 5 mm. longæ, ad 4 mm. latæ, irregulariter scutiformes, intus farinosæ, calycem ad medium velantes. *Calyx* 3-4 mm. fere ad imum in lobos ellipticos fissus, pubescens. *Corolla* purpureæ tubus calycem vix superans vel æquans, breviter infundibuliformis; limbus 5-9 mm. diametens; lobi obcordati, emarginati. *Capsula* globosa calycem haud excedens; semina non visa.

Bod La, Bhutan, at an altitude of 14,000 feet No. 69 *White!* Named after Babu Jonardun Nusker who has worked with enthusiasm in the Calcutta Herbarium for forty years and has acquired an extensive knowledge of the Indian Flora.

## ORDER—LOGANIACEÆ.

**Buddleia tibetica** W. W. Smith, sp. nov.

Ab aliis himalaicis Buddleiis adhuc cognitis foliis parvis tomentosis distinguitur.

*Caulis* fruticosus, infra rotundatus, glaber, cortice cinereo, supra quadrangularis fulvo tomento indutus, multis delapsorum foliorum basibus approximatis valde nodosus. *Folia* 4 cm. longa, 3 cm. lata, opposita, ovata, basi breviter hastata, crenata, subacuta, dense utrinque tomento fulvo velutino oblecta, nervis 5-6 paribus infra perspicuis. *Flores* in cymas densissimas terminales fere globosas 5-7 cm. longas 3-5 cm. latas. *Calyx* 5 mm. longus, 2 mm. latus, dense fulvo-tomentosus, quatuor dentibus 5 mm. longis subacutis. *Corolla* 1 cm. longa, fere glabra, tubo 1 mm. lato calycem duplo excedente, lobis brevibus rotundatis. *Stamina* quatuor in medio tubo inserta. *Ovarium* ovoideum, hirsutum, minimum, immaturum.

At an elevation of 11,000 ft. on the Tibetan side of the Himalayas in the Lhakhang valley, to the north of Bhutan, No. 72 *White!*

## ORDER—SCROPHULARIACEÆ.

**Calorhabdos Brunoniana** Benth.

Between Cheungtung and Lachung, Sikkim, 6,000 ft., No. 2853 *Smith and Cave!* An addition to the Flora of Sikkim. An interesting find as the plant is recorded only from Gossain Than, Nepal, and that only once by Wallich, and from China, at the foot of Thangshan, near Tali, *Delavay* No. 3161 (*vide* Hook. Ic. Plant. fig. 2669.)

## ORDER—BORAGINACEÆ.

**Trichodesma calycosum** Coll. et Hemsl.

An addition to the Flora of Sikkim. Originally described in 1889 by Collett and Hemsley in their "Plants from Upper Burma and the Shan States." It was found much earlier in the Darjeeling District by Mr. J. S. Gamble in 1879, No. 7544! by Mr. G. A. Gammie in 1886! but remained undescribed until the Shan State specimen was obtained. It is at the present time not an uncommon plant among the specimens sent in by the Lloyd Botanic Garden seed-collectors.

## ORDER—ARISTOLOCHIACEÆ.

*Asarum himalaicum* H. f. & T. var. *bhutanica* W. W. Smith,  
var. nov.

Folia, petioli, pedunculi capillis longis multicellularibus induti.  
Folia irregulariter cordata sinu lato.

Byagha, Bhutan No. 166 *White!* Not quite matched among the types of *Asarum himalaicum* in Kew and in Calcutta Herbaria; but not I think specifically distinct.

## ORDER—ORCHIDACEÆ.

*Aerides Greenii* W. W. Smith, sp. nov.

Species *A. cylindrico* Lindl. (non Hook.) affinis, sed flore parvo 2 cm. diametiente distinguitur.

*Caulis* ad 20 cm. *Folia* 6-10 cm. longa, 30 mm. lata, carnosa, teretia. *Flos* in brevissimo pedunculo solitarius; *sepalum* dorsale vix longius quam latum, rotundatum; *petala* subsimilia angustiora; *labellum* sepalis brevius, ad imum gynostemii adnatum, *Vandarum* more dorsatum; *pollinia* subglobosa bifida.

An *Aerides* with slender ridged stem; the leaves with a groove above, taper slightly to a somewhat pointed apex. The peduncle extra-axillary, 30 mm., suberect, clothed with a few short brown scale-bracts. The dorsal sepal with a slight notch at the apex; the lateral pair more elongated, with undulating margin, apex thickened and coming to an obtuse point, more distinctly streaked with purple than the dorsal. Petals widespread, somewhat more irregular and less rounded than the dorsal sepal. The lip with large obliquely oblong side lobes, the apical lobe fleshy with ridges down the centre. The general colour is creamy white with purple markings; the lip is spotted with deep purple on the under side and bright yellow spots above; spur purple. This new species of *Aerides* was brought from Bhutan by native collectors and flowered in the conservatory of Mr. H. F. Green of the Government Cinchona plantation, Munsong, Darjeeling. It was shown to Mr. R. Pantling, the authority on Himalayan orchids, and he recognised it as distinct from anything previously recorded from the East Himalaya. To him and to Mr. R. A. Rolfe of Kew I am indebted for allocating the plant to its correct place next to *Aerides cylindricum* Lindl. (non Hook). When I saw it, one flower only had appeared and this I dissected,

figured and described at the time. Drawings of the plant are now in the Kew and Calcutta Herbaria.

ORDER—SCITAMINEÆ.

**Hedychium Greenii** W. W. Smith, sp. nov.

A Speciebus omnibus himalaicis *Gandasulii* sectionis rubris floribus facile distinguitur.

*Caulis* 60-180 cm. *Folia* 20-25 cm. longa, 5 cm. lata, oblonga, acuminata, subtus paulum pubescentia. *Spica* ad 12 cm., densiflora. *Bractea* 5-7 cm. longæ, 3-4 cm. latæ, ovatæ, acutæ, imbricatæ, floribus 2-3. *Calyx* ad 4.5 cm. longus, tubulosus, tridentato pilosulo apice, ad basin paucis argenteis pilis indutus. *Corollæ* tubus 4-4.5 cm. longus; lobi prælongi, lineares, ad 4 cm. longi, apice subspathulato. *Staminodia* 3-4 cm. longa, linearia, rubra; *stamen* 3-4 cm. longum, filamentum rubro; *labellum* 3.5-4 cm. longum, 3-4 cm. latum, breviter bifidum, rubrum. *Ovarium* supra hirsutulatum duabus epigynis glandulis. *Semina* matura non visa. Typi tabulæque in Herb. Kew. et. Herb. Calc. conservati.

Low hills in Western Bhutan. The plant was brought to Sikkim by native collectors and flowered in cultivation at the residence of Mr. H. F. Green who was the first to observe that it differed from any known Sikkim form. The lip is dark red while the linear lobes of the corolla are much lighter. The plant is now in cultivation in the Royal Botanic Garden, Calcutta and it is hoped that it will shortly be introduced to European gardens. It forms bulbils very freely.

# SOME ADDITIONS TO THE FLORA OF BURMA

BY W. W. SMITH.

The following 17 plants, 11 of which are now diagnosed for the first time are additions to the known flora of Burma detected at various times in determining collections from several sources.

## ORDER—MAGNOLIACEÆ.

### *Manglietia Hookeri* Cubitt et Smith, sp. nov.

Species *Manglietia insignis* et *M. Caveana* affinis; foliis longioribus angustioribus, fructibus fere globosis, carpellorum dorso lævi nec lenticellato, sinu traverso longo angusto distinguenda est. Proxima est *Manglietia insignis* var. *angustifolia* ex montibus Khasianis et Assam, cujus flos fructusque ignoti.

Arbor magna; innovationes cinereo-pubescentes. *Folia* coriacea, lanceolata vel oblongo-lanceolata vel elliptica, acuta vel breviter acuminata, basi cuneata, glabra, utrinque nitentia, nervis 20-28 paribus, 20-30 cm. longa, 6-8 cm. lata; petioli 2-3 cm. longi glabri. *Flores* solitarii 10 cm. diametientes; *gemmae* cylindrico-ovoideæ, 5-6 cm. longæ; *bractea* spathacea glabra. *Sepala* tria oblonga obtusa. *Petala* 8-9 alba. *Fructus* ovoideus, fere globosus, 7 cm. longus, 6 cm. latus; *carpella* 1-4-seminifera; *semina* 10-11 mm. × 5-6 mm.

Sinlum and other stations in the Bhamo division of Upper Burma at an elevation of 5-6,000 ft., Nos. 20, 302<sup>A</sup>, 327, *Cubitt!* Mogok, Burma 4,000 ft., No. 314 *Rodger!*

A tall evergreen tree with narrow conical crown; yields valuable timber which is much prized by the Kachins of Upper Burma. The wood is used for house-posts and is said to be very durable. The Kachin name is Mägri-läkung. Its nearest ally is apparently *Manglietia insignis* H. f. & T. var. *angustifolia* from Assam and the Khasia hills; but as no flower or fruit of the latter has ever been secured, it is impossible to say anything definite about that variety. The leaves of *M. Hookeri* are very coriaceous, shining on both upper and lower surfaces, the lower being somewhat paler, both showing minute but