

Plantae Chinenses Forrestianae.

Plants discovered and collected by George Forrest during his first exploration of Yunnan and Eastern Tibet in the years 1904, 1905, and 1906.

Enumeration and Description of Species of Orchideae.*

BY

MR. R. A. ROLFE, A.L.S.,
Kew.

With Plates IX-XII.

Liparis Forrestii, Rolfe. Sp. nov.

Terrestris, 30-60 cm. alta. Caulis brevis, vaginis membranaceis laxis obtectus, monophyllus. Folia sessilia cordato-ovata, breviter acuminata, 7-nervia, membranacea, circiter 14 cm. longa, 7 cm. lata. Scapi erecti, 30-60 cm. longi, vaginis lanceolatis paucis obtecti; racemi laxi, multiflori. Bracteae lineari-lanceolatae, acuminatae, 5-8 mm. longae. Pedicelli circiter 1 cm. longi. Flores mediocres. Sepalum posticum lineari-lanceolatum, subobtusum, 8 mm. longum; sepala lateralia patentia, elliptico-oblonga, obtusa, 5-6 mm. longa. Petala linearia, subobtusum, 8 mm. longa. Labellum suborbiculare, submarginatum, crenulatum, circiter 5 mm. longum, 6 mm. latum, crebre radiatovenosum, basi obtuse carinatum et minute bituberculatum. Columna oblonga, 2 mm. longa.

"Damp woods around Nam sa Ho. Elevation 7000 ft. Frontier of Upper Burmah and China (Shan States). Flowers green and yellow. July 1904." G. Forrest. No. 261.

An ally of the N. Indian *L. cordifolia*, Hook. f., but differing in its longer scape, relatively longer leaves, and broader lip.

Liparis longipes, Lindl. in Wall. Pl. Asiat. Rar. i, p. 31, t. 35; Hook. f. Fl. Brit. Ind. v, p. 703; Rolfe in I.F.S. iii, p. 7.

* For other species of Orchideae see Paper by Dr. R. Schlechter in Notes, Roy. Bot. Gard., Edin., vol. v. p. 93.

[Notes, R.B.G., Edin., No. XXXVI, March 1913.]

"Plant of 1-2 ft. Flowers white. Shady situations, on dry rocks and branches of trees, valley of the Salwin, south of Chongwa. Lat. $26^{\circ} 45'$ N. Alt. 3000-4000 ft. Irrawadi-Salwin divide. N.W. Yunnan, November 1905." G. Forrest. No. 926.

"Plant of 1-2 ft. Flowers orange and dirty white. Faintly fragrant. Dry ledges of cliffs on the Salwin, near La-To-Wa-Di, Salwin-Irrawadi divide. Lat. $26^{\circ} 35'$ N. Alt. 3000 ft. N.W. Yunnan, November 1905." G. Forrest. No. 1032.

Oreorchis foliosa, Lindl. in Journ. Linn. Soc. iii, p. 27; Hook. f. Fl. Brit. Ind. v, p. 709; Rolfe in I.F.S. iii, p. 9.

"Valley of the Yangtze around Pung-tzu-la, and also on Mekong-Yangtze divide. Alt. from 6000-9000 ft. N.W. Yunnan, 1904." G. Forrest. No. 167.

"Mekong-Salwin divide, behind Tzekou Mission. Tibet, 1904." G. Forrest. No. 168.

Dendrobium Bulleyi, Rolfe. Sp. nov.

Caules fasciculati, erecti, elongati, subcylindrici, sulcati, foliosi, 20-30 cm. longi, vaginis nigro-hirsutis. Folia lanceolata vel subovato-lanceolata, brevissime et inaequaliter biloba, lobis obtusis, 3.5-5 cm. longa, coriacea. Racemi axillares et subterminales, brevissimi, 1-3-flori. Bractee ovatae, acutae vel subacutae, striatae, concavae, imbricatae, nigro-hirsutae, 5-8 mm. longae. Pedicelli subgraciles, circiter 2 cm. longi. Flores magni, speciosi. Sepala subpatentia, posticum lanceolato-ellipticum, breviter acuminatum, circiter 1.7 cm. longum; sepala lateralia triangularia, breviter acuminata, basi 8 mm. lata. Petala elliptico-lanceolata, acuta, circiter 1.7 cm. longa. Label-lum late obovatum, 2 cm. longum, 2.5 cm. latum, apice breviter trilobum; lobi laterales ampli, rotundati, crenulati; lobus intermedius brevis, latus, dentatus; discus tricarina-tus, carinis prope apicem crenulatis; mentum conicum, acutum, 1.7 cm. longum. Columna lata, 4 mm. longa, alis rotundatis.

"Plant of 10-12 inches. Flowers—sepals and petals yellowish-white, labellum reddish-orange, veined darker. On dry shady banks in pine woods near Tien-Ching-pu on the Teng-Yueh—Talifu road. Lat. $25^{\circ} 30'$ N. Alt. 8000-9000 ft. W. Yunnan, September 1905." G. Forrest. No. 1091.

Nearly allied to the North Indian *D. longicornu*, Lindl., of which it may be regarded as the geographical representative, but differing in its less acuminate sepals and petals, broader, not fringed, lip, shorter mentum, and generally smaller leaves.

Dendrobium clavatum, Wall. Cat. n. 2004; Hook. f. Fl. Brit. Ind. v, p. 746; Rolfe in I.F.S. iii, p. 10.

"Plant of 12-18 inches. Flowers deep orange, fleshy, non-fragrant. Crevices of perpendicular cliffs, Mekong valley. Lat. 28° N. Alt. 5000-6000 ft. Yunnan, June 1905." G. Forrest. No. 1142.

Bulbophyllum tibeticum, Rolfe. Sp. nov. Plate ix.

Rhizoma repens, validum. Pseudobulbi anguste ovoideo-tetragoni, nitidi, 2.5-3 cm. longi, basi vaginis ovatis striatis obtecti. Folia oblonga, obtusa, breviter petiolata, coriacea, 6-11 cm. longa, 1.5-2 cm. lata. Scapi suberecti, subgraciles, 9-12 cm. longi, vaginis 2 tubulosis apice acutis obtecti, 2-3-flori. Bracteae elliptico-oblongae, subobtusae, concavae, 8-10 mm. longae. Pedicelli circiter 2 cm. longi. Sepalum posticum elliptico-ovatum, obtusum, concavum, integrum, 8-9 mm. longum; sepala lateralalia subpatentia, obliqua et subfalcata, ovato-oblonga, apice subattenuata, subconcava, 1.3-1.5 cm. longa. Petala ovata, apice obtusa vel rotundata, integra, 5 mm. longa. Labellum recurvum, ovatum, obtusum, subcarnosum, 5 mm. longum, margine recurvo integro. Columna latissima, 3 mm. longa; dentes triangulares, subobtusii.

"On dry rocks, valley of the Mekong, between Bati and Tzekou. Alt. 6000 ft. Tibet, 1904." G. Forrest. No. 232.

Allied to *B. bicolor*, Lindl., but differing in the longer and narrower leaves, and some details in floral structure.

Cirrhopetalum amplifolium, Rolfe. Sp. nov. Plate x.

Rhizoma repens, validum. Pseudobulbi circiter 9 cm. distantes, ovoideo-oblongi, angulati, nitidi, 6-8 cm. longi, monophylli. Folia longe petiolata; limbus ellipticus vel elliptico-oblongus, subobtusus, 15-20 cm. longus, 7-8.5 cm. latus, coriaceus; petiolus 4-6 cm. longus. Scapi suberecti, validi, 15-30 cm. longi, vaginis 3-4 tubulosis obtecti. Flores umbellati, 4-8, speciosi. Bracteae lanceolatae vel oblongo-lanceolatae, acuminatae, subconcavae, 8-13 mm. longae. Pedicelli 1.5-2 cm. longi. Sepalum posticum ovatum, minutissime crenulatum, concavum, circiter 1 cm. longum, apice longe setiferum; seta 8 mm. longa, gracillima, flexuosa, apice longe clavata; sepala lateralalia fere ad apicem connata, 4.5-5.5 cm. longa, apice breviter bidentata. Petala triangulari-ovata, longe pectinata, 4 mm. longa, apice longe setifera; seta 9 mm. longa, gracillima, flexuosa, apice longe clavata. Labellum recurvum, ovato-oblongum, obtusum, carnosum, circiter 6 mm. longum. Columna lata, 3 mm. longa; dentes falcato-incurvae, oblongae, apiculatae, 4 mm. longae.

"Erect plant (epiphyte) of 12-15 inches. Foliage one solitary leaf, thick, fleshy, and with a pseudo-bulb. Flowers, a pale yellowish-pink veined deep purple lake. Shady situations on trees on cliffs, banks of the Salwin, Salwin-Irrawadi divide, north of Ta-ko. Lat. $26^{\circ} 30'$ N. Alt. 3000 ft. N.W. Yunnan, November 1905." G. Forrest. Nos. 958, 970, 1117.

Allied to *C. picturatum*, Lodd., but having much broader leaves, larger flowers, and the setae of the petals and dorsal sepal much longer.

Cirrhopetalum emarginatum, Finet in Bull. Soc. Bot. Fr. xliv, p. 269, t. 8.

"Plant of 4-6 ft. Flowers lake and pale yellow, faintly fragrant. On dry trees in shady situations on the ascent of the Hsu-tzu-Ngai pass, Mekong-Salwin divide, Salwin valley. Lat. $27^{\circ} 10'$ N. Alt. 8000-9000 ft. N.W. Yunnan, November 1905." G. Forrest. No. 925.

Eria acervata, Lindl. in Journ. Hort. Soc. vi, pp. 57, 58, with fig.; Hook. f. Fl. Brit. Ind. v, p. 796.

"Rocks on banks of stream near Nam-sa-Ho frontier, Upper Burmah and China. Flowers pure white, perfumed. July 1904." G. Forrest. No. 176.

Spathoglottis pubescens, Lindl. Gen. and Sp. Orch. p. 120; Hook. f. Fl. Brit. Ind. v, p. 814; Rolfe in I.F.S. iii, p. 18.

S. Fortunei, Lindl. Bot. Reg. xxxi, t. 19.

"Limestone hills in the Yung-ping valley, Teng-Yueh to Talifu route; also divide between Hoching and Lichiang valleys. Sepals deep rich brown, petals yellow. Elevation 5000-7000 ft. Yunnan, August 1904." G. Forrest. No. 71.

Thunia venosa, Rolfe in Orch. Rev. 1905, p. 206.

Phaius albus, Hook. Bot. Mag. t. 3991 (not of Lindl.).

"Hill pastureland above Yung-ping valley, Teng-Yueh-Talifu route. Elevation 5000-6000 ft. Plant of 2-3 ft. Flowers rose and white. Yunnan, August 1904." G. Forrest. No. 266.

Anthogonium gracile, Lindl. Gen. and Sp. Orch. p. 426; Hook. f. Fl. Brit. Ind. v, p. 822; Rolfe in I.F.S. iii, p. 21.

"Plant of 1-2 ft. Flowers rose-red. Labellum purple. Dry mountain pastureland on eastern slopes of Tsan-Shan Range, west of Talifu. Lat. $25^{\circ} 40'$ N. Alt. 7000-8000 ft. W. Yunnan, September 1905." G. Forrest. No. 894.

Pleione praecox, Don, Prodr. p. 37; Rolfe in Orch. Rev. 1903, p. 290.

Coelogyne praecox, Lindl. Collect. Bot. p. 37; Hook. f. Fl. Brit. Ind. v, p. 840.

"Plant of 6-10 inches. Flowers rose-magenta, with deeper markings of the same. Epiphyte on trees, in moist, dense forest on the Irrawadi-Ming-Kwong divide, also in the Irrawadi basin. Lat. about 26° N. Alt. 6000-9000 ft. Upper Burmah and N.W. Yunnan, October 1905." G. Forrest. No. 851.

Pleione yunnanensis, Rolfe in Orch. Rev. 1903, p. 292.

Coelogyne yunnanensis, Rolfe in Journ. Linn. Soc. xxxvi, p. 23.

"Mekong-Salwin divide, N.W. of Tsekou. Alt. unknown. Tibet, 1904." G. Forrest. No. 265.

Cymbidium Forrestii, Rolfe. Sp. nov. Plate xi.

C. virescens, Schlechter in Notes, Roy. Bot. Gard., Edin., xxxiv, p. 112 (not of Lindl.).

Rhizoma validum. Folia fasciculata, 6-7, anguste linearia, acuta, minutissime denticulata, 30-40 cm. longa, 4-6 mm. lata, suberecta vel arcuata, basi vaginis ovatis striatis obtecti. Scapi erecti, subvalidi, 15-20 cm. longi, vaginis lanceolatis vel oblongo-lanceolatis acuminatis striatis numerosis imbricatis obtecti, 1-2-flori. Bractee lanceolatae, acuminatae, concavae, 3-4 cm. longae. Pedicelli 1.5-2.5 cm. longi. Sepalum posticum oblongum, subobtusum, 2.5 cm. longum, 6 mm. latum; sepala lateralialia oblonga, subobtusum, 2 cm. longa, 6 mm. lata. Petala oblonga, subobtusum, circiter 1.8 cm. longa, 6 mm. lata. Labellum trilobum, circiter 1.8 cm. longum, 1-1.2 cm. latum; lobi laterales semiorbiculares, apice rotundati, lobus intermedius suborbicularis, obtusus vel apiculatus, undulatus, concavus, 1 cm. longus, 7 mm. latus; callus obovatus, basi adnatus, apice bilobus. Columna clavata, arcuata, 2.3 cm. longa.

"In dry, rocky pine woods on hills west of Yunnanfu. Elevation 9000 ft. Yunnan, S.W. China, February 1905." G. Forrest. No. 415.

Closely resembling the Japanese *C. virescens*, Lindl., in habit, but markedly different in the shape of the lip and crest.

Cymbidium grandiflorum, Griff., Notul. iii, p. 342; Hook. f. Fl. Brit. Ind. vi, p. 12; Rolfe in I.F.S. iii, p. 30.

"Growing at China Inland Mission, Talifu. Alt. 6500 ft. Yunnan, 1904." G. Forrest. No. 240.

Cymbidium pumilum, Rolfe in Kew Bulletin, 1907, p. 130.

"Limestone valleys leading from the Chung Tien plateau to Pung-tzu-la on the Yangtze. Alt. 8000-9000 ft. N.W. Yunnan, 1904." G. Forrest. No. 233.

Sarcanthus filiformis, Lindl. Bot. Reg. 1842, Misc. p. 61;
Hook. f. Fl. Brit. Ind. vi, p. 66.

"Damp rocks on sides of streams, Nam-sa-Ho frontier of Upper Burmah and China (Shan States). Flowers flesh-red. July 1904." G. Forrest. No. 161.

Spiranthes australis, Lindl. Bot. Reg. x, sub t. 823; Hook.
f. Fl. Brit. Ind. vi, p. 102; Rolfe in I.F.S. iii, p. 41.

"Dry pastureland in most valleys at an elevation of from 5000-9000 ft. Flowers pink and white. Yunnan, September 1904." G. Forrest. No. 166.

Herminium yunnanense, Rolfe. Sp. nov.

Tuber ovoideum vel ovoideo-oblongum, 8-10 mm. longum. Caulis brevis, vaginis tubulosis obtectus, monophyllus. Folia sessilia, oblonga vel lineari-oblonga, acuta, suberecta, coriacea, 4.5-6 cm. longa, 4-5 mm. lata. Scapi erecti, 12-15 cm. longi, vaginis ovato-lanceolatis acuminatis paucis obtecti; racemi oblongi, densi, 4-5 cm. longi. Bracteae ovatae, acuminatae, 4 mm. longae, basi concavae. Pedicelli 3-4 mm. longi. Flores parvi. Sepala subpatentia, ovata, subobtusata, concava, subaequalia, 2 mm. longa. Petala ovata, subacuta, concava, 1.5 mm. longa. Labellum oblongum, 2.3 mm. longum, apice tridentatum vel breviter trilobum, basi concavum. Columna lata, vix 1 mm. longa.

"Plant of 6-12 inches. Flowers greenish-yellow. Damp, barren moorland, western slopes of the Tsan-Shan Range, near the head of Yang-pi pass. Lat. 25° 40' N. Alt. 9000-10,000 ft. W. Yunnan, September 1905." G. Forrest. No. 907.

Allied to *H. gramineum*, Lindl., which also has a solitary leaf, but the scape is straighter, the spike much more dense, and the lip not tridentate at the apex.

Gymnadenia conopsea, R.Br. in Ait. Hort. Kew. ed. 2, v,
p. 191; Rolfe in I.F.S. iii, p. 52.

"Mekong-Salwin divide, behind Tzekou Mission. Tibet, 1904." G. Forrest. No. 142.

Platanthera stenostachya, Lindl. in Hook. Kew Journ. Bot. vi, p. 37; Rolfe in I.F.S. iii, p. 56.

"Moist hill pasture, Nantien valley, Bhamo-Teng-Yueh route. Elevation 4000-5000 ft. Flowers green. Yunnan, July 1904." G. Forrest. No. 165.

Platanthera iantha, Wight, Ic. v, p. 11, t. 1692; Rolfe in I.F.S. iii, p. 55.

"Dry hillsides, Teng-Yueh to Talifu route, Yung Ping valley. Elevation 6000 ft. Yunnan, August 1904." G. Forrest. No. 259.

Platanthera Susannae, Lindl. Gen. et Sp. Orch. p. 295; Rolfe in I.F.S. iii, p. 57.

"Marshy hillsides, common in places all over Yunnan. Elevation from 5000-9000 ft. Flowers greenish-white. September 1904." G. Forrest. No. 264.

Habenaria Bulleyi, Rolfe. Sp. nov.

Herba erecta, gracilis, 30-35 cm. alta. Tuber oblongum, 1-1.5 cm. longum. Caulis circiter 8 cm. longus, triphyllus, basi vaginis tubulosis obtectus. Folia caulina, patentia, linearia, sub-obtusa, 5-7 cm. longa. Scapi circiter 25 cm. longi, graciles, vaginis lanceolatis paucis obtecti; racemi 10 cm. longi, laxi, multiflori. Bracteae ovato-lanceolatae, acuminatae, 3-4 mm. longae. Pedicelli 5-6 mm. longi. Flores parvi. Sepalum posticum ovato-oblongum obtusum, subcarnosum, 2.5-3 mm. longum. Petala oblonga, subobtusum, 2.3-2.5 mm. longa. Labellum lineare, 3 mm. longum, basi angustum, ad medium tricuspidatum; lobi lineari-oblongi, carnosii; calcar oblongum, obtusum, paullo incurvum, 2.5 mm. longum; processibus stigmatiferis minutis.

"Plant of 1-2 ft. Flowers green. Barren mountain pastureland on the eastern slopes of the Tsan-Shan Range, west of Talifu. Lat. 25° 40' N. Alt. 7000-8000 ft. W. Yunnan, September 1905." G. Forrest. No. 895.

Closely resembling *H. Forrestii*, Schlechter, in habit, but the lip shortly three-lobed and the spur only half as long.

Habenaria Duclouxii, Rolfe. Sp. nov.

Herba erecta, gracillima, 12-20 cm. alta. Tuber ovoideo-oblongum, 5-8 mm. longum. Caulis brevis, 2-3-phyllus, basi vaginis tubulosis paucis obtectus. Folia caulina, suberecta vel patentia, anguste linearia, acuta, 3-7 cm. longa, 1.5-2 mm. lata.

Scapi 8-15 cm. longi; racemi 5-8 cm. longi, angusti, laxiflori. Bracteae ovatae, acuminatae, 3-4 mm. longae. Pedicelli 5-6 mm. longi. Flores minuti, virides. Sepala subconniventia, ovato-oblonga, obtusa, 3 mm. longa. Petala anguste ovato-oblonga, obtusa, 3 mm. longa. Labellum profunde trifidum, 3 mm. longum; lobi laterales subfiliformes, suberecti, lobus intermedius oblongus, obtusus, carnosus; calcar subglobosum, 1 mm. longum. Columna lata, vix 1 mm. longa; processibus stigmatiferis minutis.

"Plant of 4-10 inches. Flowers green. Barren, damp moorland on the western slopes of the Tsan-Shan Range, near head of Yang-pi pass. Lat. 25° 40' N. Alt. 9000-10,000 ft. W. Yunnan, September 1905." G. Forrest. No. 906.

Ducloux, No. 226.

Closely resembling *H. Bulleyi*, Rolfe, in habit, but dwarfer, and very different in its deeply three-lobed lip and short subglobose spur.

Habenaria ensifolia, Lindl. Gen. and Sp. Orch. p. 321; Rolfe in I.F.S. iii, p. 58.

"Valleys of Mekong and Salwin, Teng-Yueh-Talifu route. Elevation 6000-10,000 ft. Moist pastureland. Flowers green. Yunnan, August 1904. G. Forrest. No. 263.

Habenaria acuifera, Lindl. Gen. and Sp. Orch. p. 325; Hook. f. Fl. Brit. Ind. vi, p. 57; Rolfe in I.F.S. iii, p. 57.

"Moist hill pastureland, Nantien valley, Bhamo-Teng-Yueh route. Elevation 4000-5000 ft. Flowers bright yellow. Yunnan, July 1904." G. Forrest. No. 185.

Habenaria Miersiana, Champ. in Hook. Kew Journ. Bot. vii, p. 37; Hook f. Fl. Brit. Ind. vi, p. 60; Rolfe in I.F.S. iii, p. 60.

"Sides of gorge between Chien Chuan-cho and Niu Kai, Yunnan. Elevation 8000-9000 ft. September 1904." G. Forrest. No. 256.

"Dry, grassy hillsides, Chien Chuan valley. Alt. 7000-8000 ft. Flowers white. Yunnan, 1904." G. Forrest. No. 257.

Hemipilia flabellata, Bur. et Franch. in Journ. de Bot. v, p. 152; Rolfe in I.F.S. iii, p. 62.

"Dividing ridge between Hocking and Lichiang valleys. Elevation 9000 ft. Near Ling-Shan Ho river. Flowers purplish-rose. Yunnan, 1904." G. Forrest. No. 102.

Hemipilia Bulleyi, Rolfe. Sp. nov. Plate xii.

Tuber oblongum, 2-3 cm. longum. Caulis brevis, monophyllus, vaginis laxis membranaceis obtectus. Folia sessilia, amplexicaulia, late cordata, apiculata, 2.5-4 cm. longa, 2.5-4.5 cm. lata, subcoriacea. Scapi erecti, 15-25 cm. longi, vaginis paucis oblongo-lanceolatis obtecti; racemi 4-9 cm. longi, laxiflori. Bracteae ovato-lanceolatae, acuminatae, 8-10 mm. longae. Pedicelli incurvi, 1.5-1.8 cm. longi. Flores purpurei. Sepalum posticum erectum, ovato-oblongum, obtusum, concavum, 5-6 mm. longum; sepala lateralalia recurva, obliqua, semiovata, obtusa, 7-8 mm. longa. Petala suberecta, semiovata, subacuta, 4 mm. longa. Labellum subsessile, trilobum, 7 mm. longum, lateribus reflexis; lobi laterales oblongi vel triangulari-oblongi, apice breviter dentati, 2-3 mm. longi; lobus intermedius flabelato-obovatus, obtusus, crenulatus; discus minutissime puberulus; calcar 1.5-1.8 cm. longum, subrectum, crassiusculum, obtusum, basi anguste infundibuliforme. Columna lata, 3 mm. longa; rostellum cordato-oblongum, cucullatum, ascendens, circiter 1.3 cm. longum.

"Mekong-Salwin divide, behind Tzekou Mission. Elevation, Tibet. 1904." G. Forrest. No. 136.

"Dry, shady banks, head of Hoching valley. Flowers reddish-purple. Alt. 8000 ft. Yunnan, 1904." G. Forrest. No. 204.

Readily distinguished from *H. flabellata*, Bur. et Franch., by the shape of the lip, which is subsessile, strongly reflexed at the sides, and has well-developed side lobes.

Hemipilia Forrestii, Rolfe. Sp. nov.

Tuber oblongum, 3-4.5 cm. longum. Caulis brevis, monophyllus. Folia sessilia, amplexicaulia, ovato-oblonga, acuta, concava, circiter 4.5 cm. longa, 2.5 cm. lata, subcoriacea. Scapus erectus, 20 cm. longus, vaginis ovato-lanceolatis acuminatis obtectus; racemus 6 cm. longus, laxiflorus. Bracteae lanceolatae vel ovato-lanceolatae, acuminatae, 1-1.2 cm. longae. Pedicelli circiter 2 cm. longi. Flores speciosi roseo-purpurei. Sepalum posticum erectum, ovato-oblongum, obtusum, concavum, circiter 6 mm. longum; sepala lateralalia recurva, obliqua, semiovata, subobtusa, concava, 1.2 cm. longa. Petala ovato-oblonga, obtusa, 5 mm. longa. Labellum sessile, quadrato-obovatum, truncatum, crenatum, 1.3 cm. longum, 1 cm. latum; discus basi obtuse carinatus; calcar circiter 3 cm. longum, paullo incurvum, a basi attenuatum et subacutum. Columna lata, 5 mm. longa; rostellum ovato-oblongum, subobtusum, cucullatum, ascendens, circiter 3 cm. longum.

"Plant of 6-9 inches. Flowers rose-red. Ledges of cliffs forming banks of the Salwin, Salwin-Irrawadi divide, between Ya-Ko and La-To-Wa-Di. Lat. $26^{\circ} 30'$. Alt. 2900 ft. N.W. Yunnan, November 1905." G. Forrest. No. 865.

Markedly different from *H. Henryi*, Reichb. f., in the broad entire lip and the longer attenuate spur. The leaf on the single specimen seen is also much smaller and narrower.

Satyrium nepalense, Don, Prodr. Fl. Nepal. p. 26; Hook f. Fl. Brit. Ind. vi, p. 168; Rolfe in I.F.S. iii, p. 63.

"Dry pastureland at an elevation of 12,000-13,000 ft. Chung Tien plateau, flowers flesh coloured, odour same as hyacinth. Yunnan, September 1904." G. Forrest. No. 144.

"Erect plant of 1-2 ft. Flowers rose-pink, deliciously fragrant, almost identical with wild hyacinth. Dry, open, grassy hillsides (limestone), Salwin valley, Salwin-Irrawadi divide. Lat. 26° - 27° N. Alt. 7000-10,000 ft. Common over all N.W. Yunnan, November 1905." G. Forrest. No. 965.

"Plant of 1-1½ ft. Flowers rose-pink, fragrant. Dry, open downs around Teng-Yueh. Lat. 25° N. Alt. 6000-8000 ft. W. Yunnan, September 1905." G. Forrest. No. 996.

A particularly large form, of which the flowers are not well preserved.

Satyrium yunnanense, Rolfe. Sp. nov.

Tuber ovoideo-oblongum, 1.5-2 cm. longum. Caulis brevis, vaginis spathaceis paucis obtectus, diphyllus. Folia sessilia, patentia, ovata vel ovato-oblonga, obtusa, 5-10 cm. longa, 3-5 cm. lata. Scapi erecti, 20-25 cm. alti, vaginis paucis spathaceis obtecti; racemi ovoideo-oblongi, densiflori, 4-6 cm. longi. Bracteae reflexae, ovatae, subobtusae, 1.5-2 cm. longae. Pedicelli 7-9 cm. longi. Flores aurantiaci. Sepalum posticum oblongum, obtusum, 5-6 mm. longum; sepala lateralia subpatentia, ovato-oblonga, obtusa, 6-7 mm. longa. Petala elliptico-oblonga, obtusa, 4-5 mm. longa. Labellum late galeatum, 4-5 mm. longum, lateribus late rotundatis; calcaria lineari-oblonga, subobtusae, 6 mm. longa. Columna 4 mm. longa; stigma late spathulata; rostellum breve, latum, subtruncatum.

"Western slope of the Niu Chang pass, between Ke-Lo-Wan and the Chung Tien plateau. Moist, rocky places. Elevation 7000-10,000 ft. Flowers bright orange. Yunnan. September 1904." G. Forrest. No. 143.

Ducloux, 190.

Allied to *S. nepalense*, Don, but readily separated by the short

inflorescence, orange-coloured flowers, and shorter, straight spurs of the lip.

Cypripedium tibeticum, King, ex Rolfe in Journ. Linn. Soc.
xxix, p. 320; Rolfe in I.F.S. iii, p. 66.

"Mekong-Salwin divide, behind Tzekou Mission. Tibet,
1904." G. Forrest. No. 157.

LIST OF PLATES

Illustrating Mr. R. A. Rolfe's Paper on Orchideae collected by George Forrest
in Yunnan and Eastern Tibet.

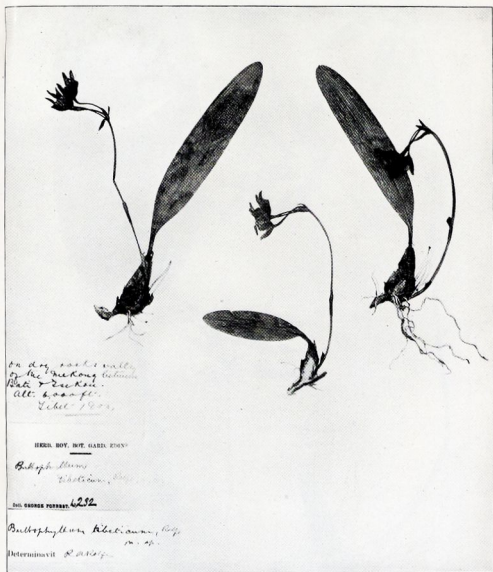
The plates are taken from photographs by Mr. R. Adam of dried specimens in
the Herbarium of the Royal Botanic Garden, Edinburgh.

PLATE IX. *Bulbophyllum tibeticum*, Rolfe. Sp. nov.

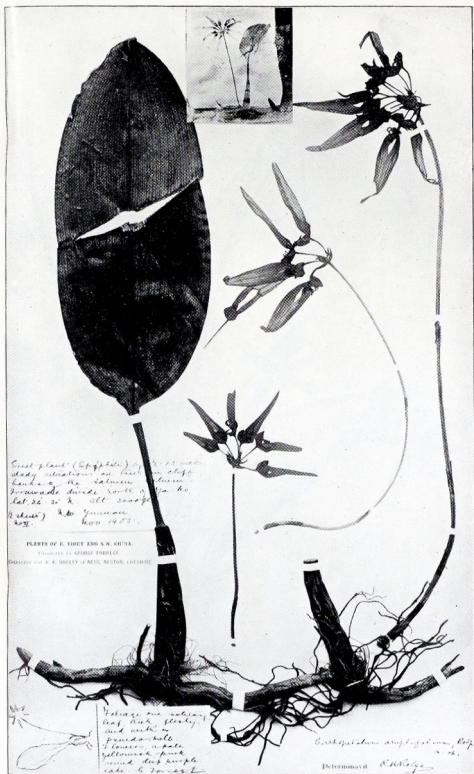
X. *Cirrhopetalum amplifolium*, Rolfe. Sp. nov.

XI. *Cymbidium Forrestii*, Rolfe. Sp. nov.

XII. *Hemipilia Bulleyi*, Rolfe. Sp. nov.



BULBOPHYLLUM TIBETICUM, ROLFE.



CIRRHOPE TALUM AMPLIFOLIUM, ROLFE.



Cymbidium Forrestii, Rolfe
n. sp.

Determinavit

R.B.G.

HERB. BOT. GARD. EDIN.

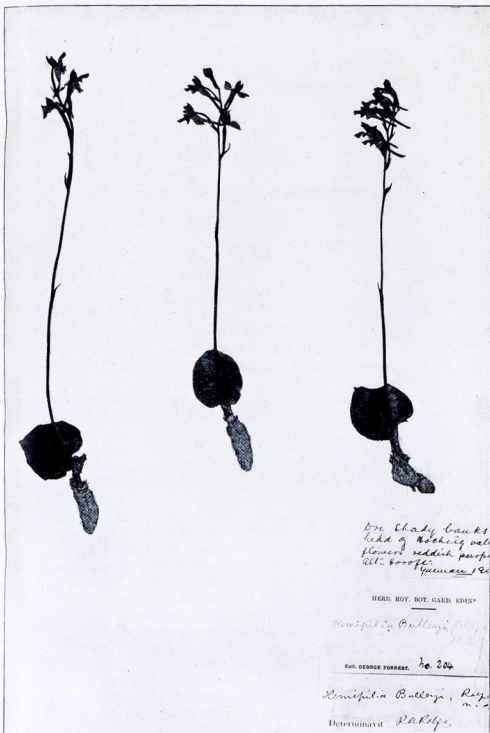
Cymbidium Forrestii,
Rolfe, n. sp.

Herb. Bot. Gard. Edin.
No. 215

DR. GEORGE FORREST.

In dry rocky pine woods
on hills with a pine forest.
elevation 9000 ft.
Yunnan, S.W. China.
February, 1903.

CYMBIDIUM FORRESTII, ROLFE.



HEMIPILIA BULLEYI, ROLFE.