

NEW SPECIES AND NOTEWORTHY RECORDS OF RHODODENDRON IN MALESIA (ERICACEAE)

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SUMMARY

Complementary notes on the taxonomy, distribution, and hybridization of a number of *Rhododendron* species in Malesia on the base of recent collections, and descriptions of 10 species new for the genus in Borneo and New Guinea.

RÉSUMÉ

Notes complémentaires sur la taxonomie, la distribution et la hybridisation de quelques espèces de *Rhododendron* dans la Malésie, et description de 10 espèces nouvelles du genre du Borneo et de la Nouvelle-Guinée.

INTRODUCTION

Since my treatment of the genus *Rhododendron* appeared in 'Flora Malesiana' in January 1966, a constant flow of specimens from Malesia is coming to the Rijksherbarium, which reflects the remarkable interest in the 'Malesians' both in scientific and horticultural circles.

It is less the appearance of new species, collected mainly in areas untouched by botanical collectors up to now, than new collections of hitherto incompletely known species in their type localities or nearby areas, which have enlarged our knowledge in the last years. Such specimens demonstrate morphological and ecological variation in natural habitats, and vice versa give hints for taxonomical reconsiderations. Besides, the more we know of the *Rhododendron* species which grow together in a certain area, i.e. a mountain slope or a valley, the more we understand 'aberrant' specimens in that area which likely can be explained as local hybrids. As in cultivation artificial hybrids of Malesian *Rhododendron* so often are growing more vigorously than their parents, we may assume that natural hybrids do the same and contribute to the aggression-effect of *Rhododendron* which is known to invade devastated or artificially cleared areas (air strips).

Of several New Guinean areas we know their *Rhododendron* species rather well by now. One of the best in this respect is the Eastern slope of Mt. Wilhelm with the adjacent Upper Chimbu R. valley, from above the timber line at c. 4000 m down to the montane forest and the clearings on either side of the valley at c. 1800 m; thanks to the easy accessibility of this area, numerous collectors (incl. the author) have been busy here, and an increasing number of hybrids has become known in recent years.

* See Reinwardtia 5 (1960) 45; Blumea 11 (1961) 113; l.c. 12 ('1963', Feb. 1964) 90; l.c. (1964) 339; Fl. Mal. I, 6 (1966) 474.

SPECIES KNOWN FROM MT. WILHELM AREA

<i>anagalliflorum</i>	<i>macgregoriae</i>
<i>atropurpureum</i>	<i>maiis</i> (var.)
<i>beyerinckianum</i>	<i>pleianthum</i>
<i>commonae</i>	<i>rarum</i>
<i>culminicolum</i>	<i>vandeursenii</i>
<i>gaultheriifolium</i>	<i>villosum</i>
<i>herzogii</i>	<i>womersleyi</i>
<i>inconspicuum</i>	<i>yelliotii</i>

LOCAL HYBRIDS KNOWN FROM MT. WILHELM AREA

<i>atropurpureum</i> × <i>culminicolum</i>	<i>gaultheriifolium</i> × <i>womersleyi</i>
<i>atropurpureum</i> × <i>womersleyi</i>	<i>inconspicuum</i> × <i>macgregoriae</i>
<i>beyerinckianum</i> × <i>culminicolum</i>	<i>pleianthum</i> × <i>maiis</i> (var.)
<i>beyerinckianum</i> × <i>womersleyi</i>	

Also in other rather well known parts of New Guinea, such as the Eastern Highlands in general, or the Edie Creek area near Wau (Morobe Dist.) local hybrids have been observed. Seedlings and young specimens brought from the field into cultivation have revealed their hybrid origin when flowering for the first time. In the light of better known circumstances in their type locality, more and more species appear to be mere occasional hybrids.

Besides such hybrids, certainly many more unknown true species exist in the hardly explored parts of Central Borneo, in parts of Celebes and the Moluccas, and especially in New Guinea, incl. New Britain. New expeditions to these parts will not only bring to light such novelties, but mainly contribute to the round-off of the patterns of distribution of already known species. In the notes given below the reader will find such amendments on the base of recent collections. The enumeration follows the one given in my treatment in 'Flora Malesiana'.

The author expresses his sincerest thanks to Dr. P. F. Stevens (formerly at Lae) who submitted determinations of numerous unicates deposited at Lae (LAE), and also to Mr. J. S. Womersley, Chief, Division of Botany, Department of Forests, at Lae, for kindly giving on loan a number of specimens from the Lae herbarium. A loan from the Herbarium Australiense at Canberra made it possible to include the specimens recently collected in the Mt. Carstensz area.

SPECIAL PART

3. *R. pulleanum* Koord. var. *pulleanum*

NEW GUINEA. E a s t. W. Sepik Dist.: Star Mts., *Craig 164*; Mt. Capella, *Craig 127*; Victor Emmanuel R.a., Mt. Womtakin, 3688 m, *NGF 20682* (LAE).

4. *R. nummatum* J. J. Sm.

NEW GUINEA. W e s t. Star Mts., Sibil valley, 1200—1300 m, *Kalkman 4014*. — E a s t. Southern Highl. Dist.: Mt. Ialibu, 3415 m, *LAE 55794*. — Central Dist.: Woitape, road to Sidibamu, 3130 m, *UPNG 1250*; Mt. Awormange, 2835 m, *NGF 20381*. — Morobe Dist.: Spreader Div., between Menyama and Aseki, 2225 m, *NGF 45441* (LAE). — Western Dist.: Kiunga, Hong Kong hill, Ok Tedi headwaters, 2100 m, *NGF 42738*. — Milne Bay Dist.: Mt. Suckling, Guaru Ridge, 2410 m, *LAE 54078*; Goe Dendeniwa, 2350 m, *Veldkamp & Stevens 5701*; Dayman R.a., Mt. Aniata, 2896 m, *Crutwell 1312*.

5. *R. gaultheriifolium* J. J. Sm. var. *expositum* Sleum.

NEW GUINEA. W e s t. Mt. Carstensz, S. end of Carstensz meadow, 3510 m, *ANU 16141* (CANB). — E a s t. W. Sepik Dist.: Star Mts., 3350 m, *Craig 165*, *NGF 33326*; Sirius plateau, 3050 m, *Craig 46*.

5. *R. gaultheriifolium* J. J. Sm. × 138. *R. womersleyi* Sleum.

NEW GUINEA. E a s t. Eastern Highl. Dist.: E. slope of Mt. Wilhelm, Lake Piunde, on granite slope, 3658 m, fl. light red, 5-3-1970, *Winters & Higgins* 616 (L); Lake Aunde, 3650 m, fl. pinkish red, *NGF* 15163 (LAE).

Leaves acuminate, scales ± disk-shaped; flowers of the size of *R. gaultheriifolium*, but ovary and base of style hairy as in *R. womersleyi*.

6. *R. oreites* Sleum. var. *chlorops* Sleum.

NEW GUINEA. W e s t. Mt. Carstensz, E. edge of Dayak meadow, fl. yellow-green, *ANU* 10949 (BO, CANB).

7a. *R. detznerianum* Sleum., spec. nov.

Frutex 0.6—1.5 m altus; ramuli erecti, rigidi, apicem versus ± dense foliis pro parte pseudoverticillatis lepidibusque stipitatis instructi, inferne verruculosi. *Folia* oblanceolata, apice attenuata et obtusa, basin versus anguste cuneata et in petiolum decurrentia, coriacea, in vivo supra saturate viridia, subtus pallidiora et glaucescentia, utrinque lepidibus crassiusculis rotundis centro parum impressis obsita, supra demum glabrescentia, margine paullo recurvata lepidibusque impressis subcrenulata, 1—1.5 cm longa, (2—)3—4 mm lata, costa supra paullo impressa, subtus prominente, nervis ± obscuris; petioli c. 1 mm longi. *Flores* ad umbellas subterminales 2(—3)-floras dispositi, interdum solitarii. Perulae ovatae, subacuminatae vel apiculatae dorso parte mediana lepidotae, epilosae, ciliolatae, usque ad 4 mm long. visae; bracteolae ignotae. Pedicelli graciles, dense lepidoti, epilos, sub anthesi 6—8 mm longi. *Calyx* patelliformis, brevissime 5-lobatus, dense lepidotus, c. 2.5 mm diam. *Corolla* saturate rubra, tubulosa, orem versus paullo dilatata, extus tota dense lepidibus rotundis obtecta, intus glabra, tubo c. 1 cm longo et inferne 3, superne 4 mm diam., lobis subrotundis suberectis erosio haud ciliatis c. 3 mm longis. *Filamenta* glabra, c. 1 cm longa; antherae late oblongae, 1.5 mm longae. *Discus* glaber. *Ovarium* cylindricum, verticaliter 5-rimosum, dense lepidibus rotundis obiectum, c. 2 mm longum et 1 mm diam.; stylus gracilis, c. 8 mm longus, basi per c. 1 mm dense lepidotus, ceterum glaber, stigmate subclavato-capitato. *Capsula* (*Hartley* 12816) late oblonga, 5-sulcata denique 5-valvata, dense lepidota, 6—7 mm longa, 3 mm diam.

NEW GUINEA. E a s t. Central Dist.: Goilala subdist., Mt. Dickson, in grassland border of *Podocarpus-Papuacedrus* forest at 3500 m, fl. 10-2-1964, *Th. G. Hartley* 12959 (CANB, K; L, type; LAE). — Morobe Dist.: above Bakaia, about 15 miles SE. of Garaina, in tree fern grassland at 2745 m, fl. fr. 24-1-1964, *Hartley* 12816.

Close to 7. *R. erosipetalum* J. J. Sm. (Vogelkop Peninsula), which differs by subsericeous and lepidote perulae and pedicels, and hairy corolla lobes. Dedicated to the memory of H. Detzner, an admirer of New Guinean *Rhododendrons* who has been in the Mt. Dickson area already in 1914 with the Kaiser Wilhelm Land Boundary Commission.

11. *R. saruwagedicum* Foerster

NEW GUINEA. E a s t. Western Highl. Dist.: Mt. Sigal Mugal, 3505—3550 m, *ANU* 15551, 15610.

13a. *R. buxoides* Sleum., spec. nov.

Frutex usque ad 2 m altus. Ramuli in sicco atro-brunnei, in partibus junioribus 2—3 mm diam. dense foliati denseque lepidibus disciformibus stipitatis obsiti, partibus vetustioribus ± defoliatis crassioribus stipitibus relinquenteribus verruculosi. *Folia* in

pseudoverticillis (2—)3-meris irregularibus internodiis 0.5—1.5 cm longis separatis disposita, obovata usque oblanceolata, apice obtusa, raro subemarginata, basin versus in petiolum decurrentia, coriacea, in sicco supra sordide olivacea, subtus brunnecentia, utrinque dense lepidota (lepidibus crassiusculis, rotundatis, integris, denique centro excepto evanidis, centro ipso sat magno bene impresso), margine valde revoluta lepidibusque impressis paulo crenulata, 1.2—2 cm longa, statu revoluto 0.4—0.8 cm lata, costa supra impressa, subtus prominente, nervis lateribus 3—4-paribus subtus elevatulis, venis obscuris; petioli 1.5—2 mm longi. *Umbellae* (2—)4-florae. Perulae interiores tantum visae, obovatae, dorso superne dense lepidotae et albopilosae, ciliatae, c. 5 mm longae. Pedicelli graciles, dense lepidoti, pilosi, 6—8 mm longi. *Calyx* oblique discoideus, obscure lobatus vel undulatus, dense lepidotus. *Corolla* tubulosa, rubra, extus ad tubum dense usque densissime lepidibus rotundatis crassiusculis obtecta, intus glabra, tota 1.3—1.5 cm longa et 3—4 mm diam., lobis 5 erectis obovato-spathulatis vel suborbicularibus 3—4 mm diam., extus parte mediana tantum lepidotis. *Stamina* 10, long. corollae tubum paullo excedentia; filamenta linearia, glabra; antherae obovatae, 1.5 mm longae. *Discus* glaber. *Ovarium* conicum, 2.5 mm altum, dense lepidotum, sensim in stylum basi lepidotum ceterum glabrum corollam long. subaequante abiens, stigmate vix capitato quasi oblique absciso. *Capsula* oblonga, lepidota, 8—9 mm longa, 3—4 mm diam., profunde longitudinaliter 5-sulcata, stylo c. 1 cm longo superata.

BORNEO. Sarawak. 5th Div.: Kalabit Highl., Mt. Murud, towards the top in moss covered shrubby vegetation on ridges, 2300 m, fl. 6-4-1970, H. P. Nooteboom & P. Chai 1973 (K; L, type; SAR); path from Long Rebata to Ba Kelalan, on rock at 2135 m, fl. 9-10-1967, S 26464 Ilias Paie (E, K, L, SAR, SING).

Close to 13. *R. perakense* K. & G., but with slightly crenulate leaves, red corolla, and the perulae both hairy and lepidote dorsally.

30. *R. agathodaemonis* J. J. Sm.

NEW GUINEA. East. W. Sepik Dist.: Telefomin, Hindenburg Ra., Mt. Amdutakin, 2420—2440 m, in secondary growth on limestone, fl. 9-1966, Kalkman 5232, Vink 17602, 17607; mountains W. of Oksapmin, 1830 m, fl. 10-1968, NGF 41682.

31. *R. herzogii* Warb.

NEW GUINEA. West. Baliem valley, near Wellesey, Kostermans & Soegeng 562. — East. Western Highl. Distr.: N. slopes of the Kubor Ra., Pullen 5212 (CANB). — Morobe Dist.: Cromwell Mts., 2315—2345 m, Hoogland 9363, 9504, 9507 (CANB). — Milne Bay Dist.: Mt. Garatun, above Agaun, Cruttwell 1551 (LAE).

Dr. P. F. Stevens in litt. says that some flowers of *R. herzogii* may bear corollas up to 9 cm long, and that such large-flowered specimens are perhaps especially common in the Western Highlands Dist. The main difference between *R. agathodaemonis* and *R. herzogii* thus becomes the length of the mature capsule.

37. *R. superbum* Sleum.

NEW GUINEA. East. Madang Dist.: Finisterre Mts., near Lake Naho in boggy grassland, 2745 m, NGF 21415; ibid., S. of Mt. Abilala, 2665 m, Pullen 6037 (LAE).

39. *R. stelligerum* Sleum.

NEW GUINEA. East. W. Sepik Dist.: Star Mts., NGF 33463 (LAE); Sirius Ra., 3050 m, Craig 73.

39. *R. stelligerum* Sleum. × 43. *R. delicatulum* Sleum.?

Specimens intermediate in leaf and flower characters between these species:

NEW GUINEA. E a s t. W. Sepik Dist.: Star Mts., May 1965, *Craig 167*; Hindenburg Ra., Mt. Amdutakin, on limestone at 2400 m, corolla tube greenish white, grading into pink lobes, 15-9-1966, *Kalkman 5284*.

41. *R. hooglandii* Sleum.

NEW GUINEA. E a s t. W. Sepik Dist.: Hindenburg Ra., Mt. Amdutakin, 2400—2460 m, in fire induced secondary forest on limestone, fl. white 13-9-1966, *Vink 17578*, *Kalkman 5281*, *5282*. — Western Highl. Dist.: Mt. Sigal Mugal, 3048—3475 m, *ANU 15542*, *15607*; Waghi-Sepik Div., Mt. Manduyl, *Black 24*. — Eastern Highl. Dist.: Mt. Ormogadzin, 3200 m, *NGF 18356*.

42. *R. rarum* Schltr.

R. rarum Schltr., D. R. Hunt, Curt. Bot. Mag. n. s. 178 (1972) t. 610.

NEW GUINEA. E a s t. Southern Highl. Dist.: track to Mt. Ambusa, 2620 m, *NGF 28171* (LAE).

42a. *R. neobritannicum* Sleum., spec. nov.

Frutex epiphyticus c. 30 cm altus, ramis gracilibus 2—3 mm crassis cito tenuiter griseo-corticatis, ramulis gracillimis 0.5—1 mm diam., novellis ferrugineo-stellato-lepidotis, partibus annotinis brunneis glabrescentibus; internodia 2—4(—8) cm longa. *Folia* ad nodos ultimos et penultimos (2—)3—4-pseudoverticillata, anguste usque late oblonga, apice sensim attenuata, subacuta vel obtusa, basi cuneata, chartacea usque subcoriacea, novella utrinque ± dense ferrugineo-lepidota (lepidibus profunde stellato-incisis, detersilibus, centro parvo tuberculo minuto insidentibus), margine parum vel vix revoluta, 2—4(—5) cm longa, 0.5—1.5(—2) cm lata, medio latissima, costa subtus tantum elevata, nervis lateralibus 5—6-paribus utrinque sat obscuris, reticulatione nulla; petioli graciles, 2—4 mm longi, initio stellato-lepidoti. *Umbellae* 2—3-florae; perulae interiores ovato-acuminatae, exteriores lanceolatae vel subulatae, dorso dense stellato-lepidotae, epilosae, usque ad 8 mm longae; bracteolae oblineares, subglabrae, c. 1 cm longae, apice 1.5 mm latae; pedicelli graciles, ferrugineo-stellato-lepidoti, epilos, 5—7(—9) mm longi. *Calyx* oblique patellaris, vix lobatus, dorso stellato-lepidotus, c. 3 mm diam. *Corolla* tubulosa, ad lobos paullo expansa, tenerrima, utrinque glabra, saturate rosea usque rubra vel purpurea, tota 1.5 cm longa, tubo parum obliquo c. 1 cm longo et 2.5 mm diam., basi vix 5-saccato, lobis subrotundis 5 mm diam.; *filamenta* tubum corollae aequantia, glabra; antherae c. 1 mm longae. *Discus* brevissime pubescens. *Ovarium* cylindricum, densissime ferrugineo-stellato-lepidotum, epilosum, c. 4 mm longum, 1.5 mm crassum, in stylum gracilem c. 6 mm longum ipsa basi lepidotum et pilosum abiens, superne usque fere ad apicem breviter cinerascenti-patentipilosum; stigma clavatum. *Capsula* anguste fusiformis, lepidota, submatura c. 2 cm longa et 4 mm diam., styli reliquias pilosis terminata, pedicello usque ad 1.5 cm longo.

NEW BRITAIN. Kandrian subdist.: in summit *Castanopsis*-rain forest of Mt. Klangal, 25 miles NNE. of Gasmata, 800 m, fl. 15-5-1973, *NGF 15558* J. R. Croft & P. Katik (L; LAE, type); ibid., 17-5-1973, *NGF 41254* (LAE). Pomic subdist.: lower slopes of Mt. Lululua, in *Nothofagus* dominated montane forest, 1585 m, fl. 5-5-1973, *LAE 58267* P. F. Stevens & Y. Lelean (LAE). Talasea subdist.: Mt. Talawe, in cloud forest on summit ridge, 1950 m, fl. 25-5-1966, *NGF 26811* D. Frodin (LAE); Mt. Tangis, NE. slopes SW. of Airagilpua, in montane forest at 1065—1120 m, fl. 17-11-1965, *NGF 26297* & *26288* D. Frodin.

Apparently close to 42. *R. rarum*, from which the new species differs by leaves widest in the middle, much smaller and quite glabrous corollas, and much smaller anthers.

43. *R. delicatulum* Sleum. var. *delicatulum*

NEW GUINEA. W e s t. Okwalimkan R. headwaters, 1220 m, *NGF 31134* (LAE), 31998.

47. *R. dielsianum* Schltr. var. *dielsianum*

NEW GUINEA. E a s t. Western Highl. Dist.: Mt. Manduif, Waghi-Sepik Div., 3200 m, *Black 18*. — E. Highl. Dist.: Henganofi, c. 30 miles W. of Kainantu, 1585 m, NGF 48568, 48569 (LAE), *J. H. Willis* a. 1970 (L); E. of Bena Bena, 1830 m, *Philipson* c.s. 3534; Daulo Pass, 2440 m, *Philipson* c.s. 3521, 3525; Chimbu R. valley, 2440 m, *Philipson* c.s. 3504; Mt. Kerigomna, NGF 40779; Watabung, 2135 m, NGF 40627; Marafunga, 2440 m, NGF 25594. Between Kainantu and Goroka, 1525 m, *Philipson* c.s. 3375.

var. *stylotrichum* Sleum.

NEW GUINEA. E a s t. Eastern Highl. Dist.: Asaro-Lufa Div., 1830 m, NGF 37139, 37141.

This variety with its glabrous filaments and sparse hairs at the base of the style is probably a hybrid between *R. dielsianum* var. *dielsianum* and another species with a hairy ovary, possibly a recross of *R. dielsianum* with a *dielsianum-macgregoriae* hybrid.

47. *R. dielsianum* Schltr. × 242. *R. macgregoriae* F. v. M.

Natural hybrids, showing the influence of their parents to various degree:

NEW GUINEA. E a s t. Western Highl. Dist.: Sirunke near Wabag, 2590 m, fl. salmon-pink, 3-5-1965, *Black 1* (L, corolla lobed almost halfway, ovary densely hairy). — Eastern Highl. Dist.: below Daulo, 2590 m, NGF 23842 (corolla lobed to c. 2/5 its length, ovary subdensely hairy); Fatima R. valley, 2345 m, NGF 24583 (LAE, flowers as in *R. dielsianum*, but filaments and base of the style laxly hairy; leaf-size of 6—8 × 1.5—2.5 cm and nervation pointing to *R. macgregoriae*).

50. *R. phaeochitum* F. v. M. × 249. *R. scabridibracteum* Sleum.

A living plant of this natural hybrid was introduced from East New Guinea, Western Highl. Dist., Al R. near Nondugl, by Mr. M. Black into his garden in 1965 (cult. *Black 154*, L).

51. *R. beyerinckianum* Koord.

NEW GUINEA. E a s t. W. Sepik Dist.: Hindenburg Ra., Mt. Kaban, 3170 m, NGF 20657 (dwarf shrub with small leaves). — Western Highl. Dist.: Mt. Sigal Mugal, 2789—3475 m, ANU 15538, 15544. — Morobe Dist.: above Bakaia, c. 15 miles SE. Garaina, 2745 m, Hartley 12806. — Central Dist.: Mt. Strong, 3277 m, LAE 51420. — Milne Bay Dist.: Mt. Suckling, 3380 m, fl. 22-8-1965, NGF 22380, 22381; ibid., S. spur of Goe Dendeniwa, 3145 m, LAE 54172, Veldkamp & Stevens 5624.

51. *R. beyerinckianum* Koord. × 138. *R. womersleyi* Sleum.

NEW GUINEA. E a s t. Eastern Highl. Dist.: Mt. Wilhelm below field station in grassland scrub, 3050—3350 m, fl. crimson 21-8-1968, *Philipson* c.s. 3382 p. p. & 3383, together with 3382 p. p. = *R. womersleyi*; ibid., 3505 m, NGF 33810.

Habit and leaves ± as in *R. womersleyi*, but in general more densely stellate-lepidote, especially on the corolla outside.

51. *R. beyerinckianum* Koord. × 268. *R. culminicolum* F. v. M. var. *culminicolum*

NEW GUINEA. E a s t. Eastern Highl. Dist.: Upper Chimbu R. valley, in cultivation in native gardens near Gembogl, 2440 m, fl. flushed to deep pink 25-8-1968, *Philipson* c.s. 3500, 3501, 3502.

Intermediate between the parents, the influence of *R. beyerinckianum* very obvious in the indumentum of leaves and flowers.

52. *R. leptanthum* F. v. M. × 139. *R. gracilentum* F. v. M.

A natural hybrid introduced as a living plant from New Guinea, Morobe Dist., Edie Creek area, into the garden of Mr. M. Black at Grasmere in 1965 (cult. *Black 175*, 320, L).

54. *R. gardenia* Schltr.

NEW GUINEA. West. E. of Balem R. valley, Angguruk, 1800 m, fl. 18-3-1973, Sauveur & Sinke 2553 (L). — East. Western Sepik Dist.: Telefomin, Oksapmin, 1585 m, in mixed forest with *Fagaceae* and *Araucaria*, fr., NGF 41542.

These are the 3rd and 4th collection of *R. gardenia*, besides the one in the Schrader Mts. and the other in the Lake Habbema area. Submature fruits c. 5 by 1 cm.

56. *R. konori* Becc. × 255. *R. zoelleri* Warb.

Cult. in Hort. Botan. Lugd.-Bat. Introduced in 1962 as a wild plant from New Guinea, Arfak Mts. Flowers regularly (twice a year) with about 5 flowers per loose umbel, partly 5-, partly 6-merous, sometimes in the same umbel. Leaves with scales on faintly elevated tubercles. Corolla 7—8(—9) cm long in all, tube pale yellow, throat yellowish, lobes reddish or with red hue at edge, 2.5—3 × 1.5—2 cm, faint scent. Anthers 5—6(—7) mm. Style hairy and scaly in the lower 3/4. Disk hairy above.

Seeds of this have been distributed to various Botanic Gardens and amateurs.

58a. *R. hyacinthosimum* Sleum., spec. nov.

R. spec., Cruttwell in The Rhododendron 8, 2 (1969) 8 & 9 (fig., based on Cruttwell '1464'); ibid. 10, 4 (1971) 10, in text.

Frutex epiphyticus vel terrestris, usque ad 3 m altus. Ramuli teretes, c. 4 mm diam., stellato-lepidoti, internodiis 3—6 cm longis. Folia ad nodos pseudo-3-verticillata et secus internodia singula sparsa, elliptica, ovato-oblonga, vel -elliptica, apice rotundato-obtusa, basi rotundata, interdum leviter cordata, coriacea, rigida, integra, margine paullo vel vix recurvata, novella utrinque aureo-stellato-lepidota, mature supra glabrescentia, tuberculis epidermalibus rugosula, subtus diutius lepidota (lepidibus stellato-incisis centro in pedem brevem attenuatis, tuberculis epidermalibus in sicco albescientibus valde distinctis impositis), demum glabrata tactuque rugosula, 6—9 cm longa, 3.5—5 cm lata, costa supra parum impressa, subtus crasse prominente, nervis lateralibus 6—7-paribus sat irregularibus utrinque prominulis, rete venarum subtus sat obscurio; petioli 0.8—1.2 cm longi, 2—2.5 mm crassi. Inflorescentiae 2- vel 3-florae. Perulae subspathulate, utrinque scabrido-hirsutae, usque ad 4.5 × 2 cm visae. Bracteolae oblineares, hirsutae, 1.8—3 cm longae, apice c. 2 mm latae. Pedicelli dense lepidoti, ulro superne pilosi, 8—10 mm longi, 2 mm crassi. Calyx c. 7 mm diam., 5-lobus, extus dense lepidotus et albo-hirsutus, intus glaber, lobis c. 2 mm longis. Corolla 5-mera, inferne tubulosa, superne ad lobos expansa, quasi cerea, albida, sed intus ad loborum basin roseo-maculata, hyacinthi odore eximia, tota in sicco 9(—10) cm longa, extus glabra, intus per cm 4—5 infer. tubi albido-hirsuta, tubo in sicco 6(—7) cm longo, basi 7—8, ore 15(—20) mm diam., lobis subrotundato-spathulatis, glabris, 3(—4) cm longis, c. 3 cm latis. Stamina 10; filamenta usque fere ad apicem densius vel laxius pilis fasciculatis hirsutula, c. 6 cm longa; antherae lineares, basi obtusae, 7(—8) mm longae, 1.5 mm latae. Discus albo-hirsutus. Ovarium cylindricum, c. 1 cm longum et 0.4 cm crassum, albo-hirsutum, sensim in stylum c. 5 cm longum per cm 4 inferiora dense pilis albidis prorsus versis hirsutum, per cm ultimum glabrum attenuatum. Capsula submatura (Cruttwell 1635) oblonga, 5-sulcata, hirsuta, 4 cm longa et 1 cm diam., stylo inferne crasso, sursum gradatim attenuato per 5.5 cm hirsuto, per cm ultimum glabro superata, matura probabiliter paullo longior.

NEW GUINEA. East Milne Bay Dist.: Daga country, Mt. Wayat, on the 'Gamatawa' side on the very top of the pass, 1900 m, in mossy *Nothofagus grandis* forest, fl. 6-6-1969, N. E. G. Cruttwell 1529 (K, type);

Mt. Wayat, 1800 m, fl. 22-4-1968, Cruttwell '1467' (cit. 1464, prob. at E); Mt. Gamatawa, 1900 m, defl. & fr. immat. 18-7-1973, Cruttwell 1635 (K, L); Mt. Mon, Maneau Ra., 2070 m, fallen blossoms, 11-7-1959, Cruttwell 1093 (K); ibid., at 2285 m, fallen blossoms, 24-6-1956, Cruttwell 800 (K); Mt. Suckling area, Mt. Gauru, 1820 m, fl. 7-1972, Cruttwell, s.n. (L, LAE).

Close to the equally 5-merous *R. opulentum* Sleum. (from Idenburg R. area), from which the new species differs by much less rich inflorescences and the apparently exclusively hairy style. Cultivated from seedlings (Cruttwell 1529) in Australia.

61. *R. cyatheicolum* Sleum.

NEW GUINEA. East. Central Dist.: W. slope of the Wharton Ra., Murray pass area, 2650—2895 m, NGF 20448, 30140, 36927, Ridsdale a. 1968 (LAE); Mt. Strong, summit ridge, 3200 m, LAE 51425.

Of these collections, NGF 20448 has shorter flowers which approach the corolla length of *R. spondylophyllum* F. v. M (type from Mt. Knutsford). It is possible, that the corolla length observed in the type specimen of *R. spondylophyllum* is due to shrinking by bad conservation or to the final state of defloration. New collections from Mt. Knutsford will decide whether the two species have to be united.

64. *R. gilliardii* Sleum.

Not yet recollected in the Mt. Hagen Ra., its type area, in spite of rather numerous collections made there in the last years. Possibly a local *R. beyerinckianum* × *macgregoriae* hybrid.

71. *R. truncicolum* Sleum.

NEW GUINEA. East. Milne Bay Dist.: Mt. Suckling area, Mayu camp, fr., 1750 m, Veldkamp s.n.; ibid., fl., LAE 54970; Mayu R. downstream from Mayu 2 camp, 1710 m, LAE 54103; South side of Guaru ridge near Mayu 2, 1930 m, LAE 55568; scarp of Tantam Plateau above Mayu R., 1980 m, LAE 55704.

74. *R. rubellum* Sleum.

NEW GUINEA. East. Central Dist.: Mt. Awormange, E. of Woitape, 2835 m, fl. light carmine, NGF 20382. Kumimaipa/Bubu Div., 3050 m, H. A. Brown 423, 424 (LAE). — Eastern Highl. Dist.: Mt. Piora, 3100 m, J. L. Gressitt 6488 (LAE).

75. *R. himantodes* Sleum.

BORNEO. Sarawak. 5th Div.: Lawas, Mt. Murud, 2135 m, fl. white, 9-10-1967, S. 26463 *Ilias Paie*. — Sabah. Mt. Alab, 1500 m, epiphyte in rain forest, Nootboom 987.

Of these collections, Nootboom 987 has leaves up to 12 cm and the other collection has these 3—6 cm long (by 2 mm). As the latter is intermediate between var. *himantodes* (Mt. Kinabalu) and var. *lavandulifolium* Sleum. (Mt. Kemul), the differences between these varieties lose significance.

76. *R. vinicolor* Sleum.

SUMATRA. Atjeh. G. Leuser Res., G. Bandahara, 1100 m, fl. 18-6-1972, De Wilde & de Wilde-Duyffjes 12999 (L).

80a. *R. micromalayanum* Sleum., spec. nov.

Frutex vel arbuscula 1—1.8 m alta, interdum epiphytica, ramulis gracilibus densissime lepidibus obtectis ut in *R. malayano* inveniuntur; internodia (0.5—)1—5 cm longa. Folia ad apices internodiorum (2—)3(—4)-verticillata, linearis-oblonga, apice breviter attenuata

et (sub)obtusa, basi in petiolum cuneata, subcordata, integra, plana, sed costa supra valde impressa, (1.2—)2—3(—3.5) cm longa, 3—6(—11) mm lata, mature supra laxe, subtus et in petiolo ut in *R. malayanum* fusco-fuliginoso-lepidota; petioli sat graciles 2—5(—6) mm longi. Inflorescentiae terminales 2-florae. Perulae exteriores suborbiculatae, interiores ovatae, dorso glabrae, dense albido-ciliatae, usque ad 4 mm longae et 3 mm latae. Bracteolae haud visae. Pedicelli graciles, dense lepidoti, epilosi, 4—7 mm longi. Calyx disciformis, paullo lobatus, c. 2 mm diam. Corolla tubulosa, rosacea, rosaceo-rubra, vel crema, cum lobis 1.8 cm longa, extus ad tubum et loborum basin laxe lepidota, intus omnino glabra, tubo recto 1.3—1.5 cm longo et 2—3 mm diam., basi leviter 5-saccato, lobis obovato-spathulatis 5 mm longis et c. 4 mm latis. Stamina 10, paullo inaequilonga, c. 1.7 cm longa; filamenta linearia, ipsa basi tantum brevissime pubescentia, ceterum glabra; antherae late oblongae, aurantiacae, c. 1.5 mm longae. Discus glaber. Ovarium elongato-conicum, dense lepidotum, c. 4×1 mm, sensim in stylum glabrum c. 1 cm longum abiens, stigmate turbiniformi-capitato breviter 5-lobo. Capsula adhuc ignota.

BORNEO. Sarawak. 4th. Div.: G. Api, Ulu Melinau, Baram, 1220 m, fl. 8-1958, Ashton A 344 (K, L); ibid, 800 m, fl. 5-9-1970, S. 29439 Chai & Lehmann. 5th Div.: Kalabit Highlands, Mt. Batu Lawi, on summit at 1950 m, fl. 28-4-1970, Nooteboom & Chai 2279 (L, type; SAR); path from Long Rebala to Ba Kelalan, Mt. Murud, on summit 1675 m, fl. 16-10-1967, S. 26555 Ilias Paie (E, K, L, SAR).

To insert in the key next to *R. malayanum* Jack, with which it has most of the flower characters in common, but the leaves are constantly smaller.

85. *R. obscurum* Sleum.

MALAYA. Pahang. On top of G. Benom (=type locality), in open *Leptospermum* woodland, common bush, 2050 m, fl. orange-red, 19-3-1967, FRI 3284 Whitmore.

Found together with FRI 3283 = *R. wrayi* King, but apparently not a hybrid with that species.

92. *R. zollingeri* J. J. Sm.

PHILIPPINES. Luzon. Mountain Prov.: common on one slope above road c. 16 km from Banaue to Bontoc, fl. 24-5-1969, B. Palser 6912, 6922 (L).

FLORES. West. Ruteng area, 1300—1800 m, Kostermans & Wirawan 892, Schmutz 1781 (L); Mt. Ranaka, 1700 m, Kostermans & Wirawan 708.

94. *R. yelliotii* Warb.

NEW GUINEA. East. Morobe Dist.: Mt. Dickson, Hartley 12980. — Central Dist.: S. slope of Mt. Albert Edward, 3350 m, NGF 30056, 30105; W. slope of the Wharton Ra., 2925 m, NGF 30022; Murray Pass, 2590 m, NGF 48413A, p.p.; Mt. Strong, 3290 m, LAE 51419.

95. *R. correoides* J. J. Sm.

NEW GUINEA. West. Mt. Carstensz, limestone hill at S. end of Carstensz meadow, 3540 m, ANU 10848 (CANB); edge of Dayak meadow, 3690 m, ANU 16000 (CANB).

96. *R. comptum* C. H. Wright var. *comptum*

NEW GUINEA. East. Central Dist.: summit area of Mt. Albert Edward, ridge above Neon Basin 3000 m, Pajmans 623 (CANB).

var. *trichodes* Sleum.

NEW GUINEA. East. Central Dist.: Woitape subdist., Tsidibamul, 3050 m, fl. bright red 24-8-1969, NGF 38305.

102. *R. versteegii* J. J. Sm.

NEW GUINEA. West. Carstensz meadow, in stony areas of limestone, 3500 m, ANU 10877 (CANB).

103. *R. multinervium* Sleum.

NEW GUINEA. Apparently not too rare in the Eastern Highlands District.

109. *R. macrosiphon* Sleum.

NEW GUINEA. East. Western Dist.: Kiunga subdist., Hong Kong hill, Ok Tedi headwaters, 2100 m, NGF 42721. 2nd. collection. Leaves up to 11 by 7 cm.

110. *R. carringtoniae* F. v. M.

R. spec. 'Suckling (1)' Cruttwell, The Rhododendron 11-4 (1972) 9, fig.

NEW GUINEA. East. Milne Bay Dist.: Mt. Suckling complex, ridge from Pumpunipon to S. ridge of Goë Dendeniwa, in Araucaria forest, 2450 m, Veldkamp & Stevens 5787; ridge between Punpuniwa & Mayu Rivers, 1890 m, LAE 54007.

113. *R. maius* (J. J. Sm.) Sleum.

The type of *R. maius* from the Hubrecht Mts. has rich trusses, corolla tubes ± 8 cm long, leaves coriaceous, elliptic-oblong, apex obtuse, petiole 4—8 by 1.5—2 mm. Materials with similar leaves, but shorter corolla tubes (6.5—7 cm) were collected in 1965 by B. Craig (92) on the Sirius ridge, Star Mts., at 3050 m.

All specimens considered to be *R. maius* from the Mt. Wilhelm-Pengatl Creek area and from Marafunga (NGF 25600) are atypical, having more ovate-elliptic and acuminate, coriaceous to subcoriaceous leaves, petioles 3—6 by 2 mm, and less flowers per truss, the corolla tube varying from 6—7 cm in length. Moreover, in that area grow specimens of typical *R. pleianthum* with thick-coriaceous, broad-elliptic leaves, apex rounded obtuse, petiole 2—4(—6) by 2—3 mm, corolla tubes 5.5—7 cm long, such as Borgmann 268, Brass 30515, NGF 23130, 23183, 34618. *R. pleianthum*, originally described from Mt. Hagen, is now also known from Kerigomnasina near Marafunga (NGF 24618) and the Wabag area (ANU 2589 & 2590, but petiole partly up to 11 by 3 mm), Mt. Piora (NGF 1653: LAE), Mt. Giluwe (NGF 33000, Schodde 2066), Mt. Otto (Brass 30971), and the Porul Ra. near Kundiawa (Searle 22).

Intermediate between *R. maius* and *R. pleianthum* in leaf-characters (lamina coriaceous, apex subacuminate, petiole 3—6 by 2 mm) are NGF 23129 and Stauffer 5643, also from Pengatl Creek.

Not thinking that NGF 23129 and Stauffer 5634 efface the differences between *R. 'maiis'* and *R. pleianthum*, I am inclined to consider these 2 collections as local hybrids.

There remains the question, if *R. 'maiis'* from the Pengatl Creek area should be kept separate as a — not yet described — variety, or even as a proper species. This can be decided only after collections of *R. maius* s. l. are known from the range between the Star Mts. and Porgera, an area still poorly known botanically.

114a. *R. hartleyi* Sleum., *spec. nov.*

Frutex epiphyticus c. 5 m altus. Ramuli ultimi graciles (c. 2 mm) laxe substellato-lepidoti; internodia 2—3 cm longa. Folia 4 vel 5 ad nodos ultimos et penultimos pseudoverticillata, lanceolata usque elliptico-, raro subobovato-lanceolata, apice gradatim attenuata, subacuta, basi in petiolum cuneata, subcoriacea, in vivo supra saturate viridia, subtus glaucescentia, in sicco supra olivaceo-viridia subtus brunnescens, matura supra

obscure, subtus distinete sat laxe lepidota (lepidibus planis substellatis, centro parvo paullo impresso denique nigrescente), integra, paullo vel vix revoluta, 4.5—7.5 cm longa, (1.5—)1.8—3 cm lata, costa supra inferne leviter impressa, subtus prominente, nervis lateralibus sat irregularibus 7—8-paribus utrinque cum reticulatione venarum sat densa prominulis; petioli 1.8—2.5 cm longi, c. 1 mm crassi. *Umbellae* 6—8-florae. Perulae haud visae. Bracteolae filiformes usque elongato-spathulatae, 1—1.5 cm longae, apice usque ad 2 mm latae. Pedicelli graciles, rubri, subdense breviter albido-patentipilosi, c. 1.5 cm longi. *Calyx* obliquus, patellaris, obscure 5-lobus, c. 2.5 mm diam. *Corolla* tubulosa, paullo curvata, orem versus paullo dilatata, tenera, albida, extus laxe substellato-lepidota, intus in tertio inferiore laxe pilosula, tubo in sicco 6—6.5 cm longo, basi 3, ad orem 5—6 mm diam., lobis obovatis expansis vel ± reflexis, utrinque glabris, c. 1.3 cm longis et 1 cm diam. *Stamina* 10; filamenta inferne per c. 2 cm laxe pilosa, ceterum glabra, e tubo paullo exserta; antherae oblongae, basi obtusae, 2.5 mm longae. *Discus* pilosulus. *Ovarium* cylindricum, albo-cinereo-tomentosulum, 5—6 mm longum, 1.5 mm crassum, sursum in stylum inferne per 1—1.5 cm laxe patenter pilosum ceterum elepidotum abiens, stylo ipso 6—6.5 cm longo, stigmate subcapitato 5-lobulato. *Capsula* deest.

NEW GUINEA. E a s t. Morobe Dist.: above Bakaia, 15 miles SE. of Garaina, in moss forest at 2745 m, fl. 24-1-1964, Th. G. Hartley 12788 (LAE; L, type).

Apparently close to *R. cruttwellii* Sleum. but sufficiently distinct by more slender and much longer petioles, smaller leaves, and a hairy disk.

116. *R. pleianthum* Sleum. See also sub 113. *R. maius*.

NEW GUINEA. E a s t. Western Highl. Dist.: Ambun valley, Flenley ANU 2653. Wabag, 2745 m, Flenley ANU 2589, 2590; Kubor Ra., S. of Minj, 2875 m, Pullen 5285 (CANB).

116a. *R. searleanum* Sleum., spec. nov.

Frutex 3—4 m altus. Ramuli teretes, 6—8 mm crassi, dense lepidoti; internodia ultima et penultima 5—12 cm longa. *Folia* ad nodos 5-pseudoverticillata, late elliptica, apicem versus late attenuata, ipso apice brevissime subacuminata vel saepius obtusa, basi rotundata vel truncata, interdum subcordata, coriacea, rigida, in sicco supra olivacea, subtus rubro-brunnea, utrinque dense lepidota (lepidibus margine angusto tenuibus et subintegris, centro crasso rotundo paullo impressis), 6.5—11 cm longa, 4—7.5 cm lata, margine in sicco paullo revoluta, costa supra anguste impressa, subtus crasse prominente (basin versus gradatim petioli crassitiem attingente), nervis lateralibus 7—8—paribus sat irregularibus, ante marginem ± arcuato-conjunctis, supra impressiusculis, subtus prominentibus, venis supra parum conspicuis, subtus elevatis laxeque reticulatis, venulis obscuris; petioli in vivo rubri, supra leviter sulcati, dense lepidoti, (6—)10—22 mm longi, 2—3 mm crassi. *Umbellae* (11—)14—16-florae. Perulae exteriores subspathulato-obovatae, dense lepidotae brevissimeque pilosae, tactu molles, interiores usque ad 5 cm longae et 3 cm latae. Bracteolae inferne lineares, superne spathulato-dilatatae, hirsutae, usque ad 4 cm longae, apice usque ad 5 mm latae. Pedicelli dense lepidibus subintegratis obtecti, ceterum superne parcepilos, 8—10 mm longi, 2—2.5 mm crassi. *Calyx* oblique disciformis, vix 5-lobulatus, dorso lepidotus et parcepilosus, intus glaber, c. 4 mm diam. *Corolla* tubulosa, ad lobos paullo expansa, extus pallide, ore intus saturatirosacea, ad tubum interdum albida, tota in vivo 10—12.5, in sicco 9.5—10 cm longa, tubo recto in sicco 6.5—7 cm longo, inferne 8—10, orem versus c. 12 mm diam., ad lobos 5—6 cm diam., extus laxe lepidibus subintegratis adsperso, intus dense albopilosus, lobis 5 suborbiculato-obovatis (2.5—) 3 cm longis et latis, extus inferne lepidotis, ceterum intusque glabris. *Stamina* 10, tubum corol-

lae paullo excedentia; filamenta dense subpatenter longepilosa; antherae oblongo-lineares, basi obtusae, 4.5 mm longae, 1 mm latae. *Discus* prominens flavo-hirsutulus. *Ovarium* cylindricum, dense lepidotum et flavidohirsutum, 15 mm longum, 3 mm crassum, sensim in stylum c. 6 cm longum inferne hirsutum et lepidotum, superne laxius pilosum et lepidotum, per cm 1.5 ultima glabrum abiens; stigma crasse 5-lobum. *Fructus* obsusiformis, paullo curvatus, lepidotus et pilosus, 5.5 cm longus, 0.7 cm crassus.

NEW GUINEA. E a s t. Eastern Highl. Dist.: Gumine subdist., Yani area, Dirima-Gomgali road, in open forest and grassland, with scattered *Casuarina* and *Lithocarpus*, 2135 m, fl. carnation scent, 10-6-1972, L. K. Searle 39 (LAE, type; L); ibid., flowers and fruits collected from the same shrubs in 8-1973, L. K. Searle '39' (L).

According to the collector occurring also on the lower slopes of Mt. Digimi, NE. Kubor Ra.

Though the scales are almost entire in the dry specimens (the narrow marginal part wrinkled), I refer this new species to the subsect. *Solenovireya* close to *R. maius* and *R. pleianthum*. The corolla is much larger than in the Chimbu-Mt. Wilhelm 'maiis' discussed above. From *R. pleianthum* the new species is easily distinguished by the much longer petioles, the perulae with hairs and scales dorsally, and also by its thicker pedicels and larger flowers.

Mr. Searle (his nr. 14) and Mrs. A. N. Millar (NGF 40973) have collected in the Kunduwa area a *R. 'maiis'* with rather typical *maiis*-flowers, but more coriaceous long-petioled leaves, and up to 18 flowers per truss; this might be considered as a *searleanum-maiis* hybrid.

119. *R. armitii* F. M. Bailey

NEW GUINEA. E a s t. Milne Bay Dist.: Rabaraba subdist., road to Mt. Simpson, Idop Ra., 2395 m, fl. pink at tube, white at lobes, NGF 17599; Mt. Wadimana, NE. outlier of Mt. Simpson, 2200 m, Pullen 2829, 2830 (CANB); Goodenough I., Mt. Vinevo, margin of alpine mossy forest, fl. white and scented 14-10-1964, Cruttwell 1430 (K, LAE).

120. *R. ?tuba* Sleum.

NEW GUINEA. E a s t. Milne Bay Dist.: Goropu Mts. (Mt. Suckling area), Goëpon, 2485 m, one specimen seen, Fenner s.n. (L).

Seems to be intermediate between *R. carringtoniae* and *R. rhodoleucum*, and is possibly a natural hybrid between these species, which are known from the same area.

121. *R. rhodoleucum* Sleum.

NEW GUINEA. E a s t. Milne Bay Dist.: Mt. Suckling area, ridge from Pumpunipon to South ridge of Goë Dendeniwa, scattered in elfin forest at 3000 m, Veldkamp & Stevens 5620.

129. *R. goodenoughii* Sleum.

NEW GUINEA. E a s t. Milne Bay Dist.: Goodenough I., Mt. Vinevo, on exposed top of ridge, fl. waxy, pure white, and scented like *Dianthus*, 13-10-1964, Cruttwell 1410 (K, LAE).

131. *R. orbiculatum* Ridl.

R. orbiculatum Ridl., D. R. Hunt, Curt. Bot. Mag. n.s. 178 (1970) t. 575, *versus* *R. suaveolens* Sleum.; D. R. Hunt, Curt. Bot. Mag. n.s. 178 (1972) t. 600.

R. suaveolens, described by me in 1934 from Mt. Kinabalu, is in my precursory paper on Malesian Rhododendrons (*Reinwardtia* 5, 1960, 133) still regarded to be distinct from *R. orbiculatum* Ridl. (Sarawak, Brunei). When ascending Mt. Kinabalu in 1963 I tried in

vain to find *R. suaveolens* in flower to see its real differences with *R. orbiculatum*. Later in that year (Blumea 12, 1963, 112), partly under the influence of badly prepared materials, I decided to unite the two species under the older name of *R. orbiculatum*.

Recently, when *R. orbiculatum* and *R. suaveolens* flowered at Kew, D. Hunt was able to see that these species are sufficiently different and should be maintained, to which I agree. In the key in Fl. Males. I, 6: 549 now the name 'orbiculatum' in line 14 from above must be altered into 'suaveolens', whilst the name 'orbiculatum' in the last line of this key stands to right. The name 'orbiculatum' in the key on p. 609 refers only to that species.

R. suaveolens still is exclusively known from Mt. Kinabalu.

New collections of *R. orbiculatum* are:

BORNEO. West. Mt. Glam, Upper Kapuas R. area, near Silat, 500 m, *Langassé* 66 (G). — Sarawak. 1st Div.: Serian, Mt. Penrisen, S 16311. 3rd Div.: G. Dulit, Ulu Atun, 1500 m, S 22749 (K); Bukit Kemulang, Ulu Amau, 1000 m, S 21193; Bukit Lumut, 950 m, S 21259; Ulu Mujong, Carapa Pila, 850 m, S 19971; Mujong/Pila watershed, 900 m, S 19608; Hose Mts., 1350 m, S 17642. 5th Div.: Lawas, Bukit Bu(m)bong Rumah, 900 m, S 12368; Kalabit Highl., G. Murud, c. 2300 m, *Nooteboom & Chai* 1972. — Brunei. G. Pagon ridge, 1675 m, *Ashton BRUN* 1651. — Sabah. Mt. Kinabalu, R. Soc. Base Camp, 1220 m, *Collenette* 811.

133. *R. loranthiflorum* Sleum. — 135. *R. subpacificum* Sleum.

With new collections from New Britain and the Solomon Is. at hand, characters as the different density of indumentum and, to a certain degree, also the length of the corolla seem to have been overrated for the discrimination of these two species.

Specimens known up till now:

NEW GUINEA. East. Milne Bay Dist.: Goodenough I., Wagana creek, 975 m, epiphyte in oak forest, *Cruttwell* 1450 (K).

NEW BRITAIN. Talasea, Matabunu headwaters, 200 m, NGF 1078; ibid., Mt. Tangis, 1065 m, NGF 26287 (LAE); Pomio subdist., Pakia, 915 m, *Panoff* 172 (LAE); edge of Mengen massif, 1020 m, LAE 58743.

BOUGAINVILLE. Buin, Koniguru, *Kajewski* 2045 (BRI, type of *R. loranthiflorum*; E, fragm.; L, fragm.); Lake Luralu crater, 15 miles N. of Buin, 760 m, *Craven (& Schodde)* 158; Mts. behind Kapi Kavi, 1005 m, NGF 31583.

NEW GEORGIA GROUP. Kolombangara I., 120 m, BSIP 1491; Vangunu I., crater rim, 610 m, BSIP 986 (K; L, type of *R. subpacificum*; LAE).

MALAITA. Are Are Distr., 5 miles from Kiu on W. coast, 395 m, BSIP 3889.

Note. In cultivation in Australia, introduced from Bougainville.

137. *R. anagalliflorum* Wernh.

NEW GUINEA. West. Limestone hill south end of Carstensz meadow, 3540 m, on rocky slopes, ANU 10847. — East. W. Sepik Dist.: Star Mts., Sirius plateau, 3050 m, matted growth on tree trunks, *Craig* 72. — Eastern Highl. Dist.: Gumine subdist., Ekuam, 2590 m, NGF 38362 (LAE); Mt. Wilhelm, 3170 m, NGF 36676 (LAE); Mt. Piora, 2895 m, NGF 16532, 16534. — Central Dist.: W. slope of Wharton Ra., 2650 m, NGF 30033; Murray Pass, 2805 m, NGF 36872. — Southern Highl. Dist.: Mt. Bosavi, *Schieffenhövel* 38 (LAE).

NEW BRITAIN. Pomio subdist.: Mt. Lululua, common epiphyte in *Nothofagus*-dominated moss forest, 1435—1830 m, fl. 5-1973, LAE 58288, 58435.

138. *R. womersleyi* Sleum.

NEW GUINEA. East. Western Highl. Dist.: Mt. Hagen, 3715 m, ANU 6384. — Madang Dist.: Finisterre Mts., summit ridge of Mt. Abilala, common, 3200—3410 m, NGF 21430, *Pullen* 6069. — Morobe Dist.: Mt. Amungwiwa, 3475 m, NGF 17988 (LAE).

138. *R. womersleyi* Sleum. × 191. *R. atropurpureum* Sleum.

NEW GUINEA. East. Eastern Highl. Dist.: Mt. Wilhelm, NE. of Lake Aunde, in rather sparse shrubbery of ridge top, very local, fl. crimson 9-5-1965, *Van Balgooy* 271; ibid., near field station, in subalpine scrub at

3500 m, fl. scarlet, 25-8-1968, Philipson c.s. 3485 (L); ibid., 3565 m, fl. deep red, 11-6-1968, Vandenberg NGF 35067.

Intermediate between parents, which are rather common in these places. According to Stevens *in litt.* the hybrid is also known from the Kubor Ra.

NGF 14674 Millar & Van Royen from Lake Aunde apparently represents a recross of this hybrid with *R. atropurpureum*, to conclude from leaf and flower characters.

139. *R. gracilentum* F. v. M.

NEW GUINEA. E a s t. W. Sepik Dist.: Mt. Bli, S. of Oksapmin, 2380 m, NGF 41693 (LAE); Hindenburg Ra., Mt. Amdutakin, 2460 m, in fire induced secondary forest on limestone, Vink 17575, 17575A. — Western Highl. Dist.: Kum Mountain, 19 km S. of Mt. Hagen, 2743 m, Winters & Higgins 662 (L). — Southern Highl. Dist.: Ialibu, 1980 m, NGF 37094 (LAE). — Eastern Highl. Dist.: Wahgi-Jimmi Div., junction of Warapuri and Kori R., 2195 m, NGF 18167 (LAE). — Morobe Dist.: above Bakaia, 15 miles SE. of Garaina, 1980 m, Hartley 12888; Mt. Shungol, SW. of Wagau, 2225 m, Hartley 12552; Lake Trist, 1645 m, NGF 29117 (LAE).

140. *R. caespitosum* Sleum.

NEW GUINEA. W e s t. Mt. Carstensz, Kemabu plateau, 3420—3600 m, ANU 16054A, 16108 (CANB).

141. *R. microphyllum* J. J. Sm.

NEW GUINEA. W e s t. S. end of Carstensz meadow, 3520 m, ANU 10840 p.p.

147. *R. coelorum* Wernh.

NEW GUINEA. E a s t. W. Sepik Dist.: Star Mts., Craig 166 (L, fragm., LAE).

It is possible, that with more materials at hand 21. *R. schizostigma* Sleum. from Lake Habbema and Hubrecht Mts. has to be united with *R. coelorum*, and that 146. *R. distergmoides* Sleum. is but a variant with more ovate leaves.

148. *R. saxifragoides* J. J. Sm.

NEW GUINEA. W e s t. Griky limestone hill at end of lower Meren Valley, Mt. Carstensz, 3870 m, ANU 10904 (CANB). — E a s t. W. Sepik Dist.: Star Mts., Sirius West camp to Capella West camp, in moist alpine grassland, Craig 110.

149. *R. taxifolium* Merr.

PHILIPPINES. L u z o n. Benguet: Mt. Pulog, 2300—2500 m, in primary forest, fl. 5-2-1968, Jacobs 7327; ibid., N. slope facing Mt. Panotoan, 2400—2700 m, defl. 3-2-1968, Mendoza s.n. (L); Mt. Tabayoc, 2000—2300 m, Jacobs s.n. (L).

153. *R. purpureiflorum* J. J. Sm.

NEW GUINEA. E a s t. Morobe Dist.: Cromwell Mts., Mannasat, 2400 m, Hoogland 9666 (CANB).

157a. *R. whiteheadii* Rendle (*R. curranii* Merr.)

Both in Reinwardtia 5 (1960) 151 and in Fl. Males. I, 6 (1966) 583, I have considered the red-flowered *R. whiteheadii* and *R. curranii* to be synonyms of the white-flowered *R. vidalii* Rolfe (*R. lussoniense* Rendle) because, except for the colour of the flowers, no constant differences could be found between these species, the mature fruit still being unknown by then. When I visited Mt. Polis, the type locality of *R. whiteheadii* and *R. lussoniense*, together with Dr. Mona Lisa Steiner and Dr. P. van Royen in May 1961, we found only white-flowered specimens. I got the impression that red-flowered specimens must be rare and might be due to hybridization with another (red-flowered) species.

In 1967, D. R. Mendoza collected a pink-flowered '*vidalii*' near Banaue (*PNH* 97828), and in 1968 Jacobs & Mendoza gathered red-flowered specimens on Mt. Pulog and Mt. Tabayoc, which, as to vegetative and floral characters, fall within the variability of *R. vidalii*. The mature fruits of the Mt. Pulog specimen, however, are distinctly larger (2.5 by 0.5–0.6 cm) than those of *R. vidalii* (1.5–2 by 0.3–0.4 cm). Colour of the flowers and size of the fruit now allow to separate *R. whiteheadii* from *R. vidalii* rather satisfactorily, though intermediates with pink corollas seem to exist. The whole question can be settled only by future research in the field.

The following specimens belong to *R. whiteheadii*:

PHILIPPINES. LUZON. Mountain Prov.: Ifugao subprov., Mt. Polis, 1830 m, *Whitehead* a. 1896 (BM, type of *R. whiteheadii*); Mt. Tabayoc, W. side, 2100 m, *Jacobs* 7561 (L); Mt. Pulog, N. side, c. 2400 m, fl. fr. 3-2-1968, *Jacobs* (leg. *Mendoza*) 7308 (L); Benguet subprov., F.B. 15738 *Curran* & *Merritt* (US). — Zambales Prov.: Mt. Tapulao, 2000 m, F.B. 8061 *Curran* & *Merritt* (US, isolectotype of *R. curranii*, n.v.), B.S. 4988 *Ramos* (US, iso-syntype of *R. curranii*, n.v.).

159. *R. vandeursenii* Sleum.

NEW GUINEA. E ast. Eastern Highl. Dist.: crest of the Porul Ra., 2285 m, *Searle* 26 (LAE); Porget logging area, 12 miles N. of Wabag, *NGF* 11351.

165. *R. commonae* Foerst.

NEW GUINEA. E ast. W. Sepik Dist.: Star Mts., Sirius plateau, 3050 m, *Craig* 47. — Western Dist.: Krom (Dekim) R., Kawol, 2745 m, *Craig* 31. — Madang Dist.: Finisterre Mts., Mt. Abilala summit area, 3230—3440 m, *NGF* 21437, 21445, *Pullen* 6065.

170. *R. vitis-idaea* Sleum.

NEW GUINEA. E ast. Madang Dist.: Saidor subdist., Nahoi-Rawa Div., 2285 m, *NGF* 21358 (corolla 2.5–3 cm long). — Morobe Dist.: Mt. Amungwiwa S. of Wau, 3350—3470 m, *NGF* 17929, *Rosenberg* 43 (LAE); Bulldog track, Edie Creek, 3050 m, *NGF* 21202; above Bakaia, 15 miles SE. of Garaina, 2745 m, *Hartley* 12818 (corolla 3–4 cm long, approaching *R. vandeursenii*?).

171. *R. rhodostomum* Sleum.

NEW GUINEA. E ast. Morobe Dist.: Saruwaged Ra., Upper Zaran creek, SW. slope of Mt. Enggom, subalpine shrubbery at 3265 m, fl. red or cream with pinkish tips, *NGF* 16178, 16179.

To this species also belong *Clemens* 5876, 5877 & 7549, all from Mt. Saruwaged, cited in *Reinwardtia* 5 (1960) 58 sub *R. lindaeum* Koord., a species which is apparently absent from Mt. Saruwaged.

173a. *R. stevensianum* Sleum., spec. nov.

Frutex erectus, c. 30 cm altus, e basi multicaulis; ramuli graciles, novelli rubescentes laxeque lepidoti et patenter puberuli, vetustiores tenuiter griseo-corticati 2–3 mm diam.; internodia (1–)2–5 cm longa. *Folia* 2 vel 3 (uno saepius minore) ad nodos pseudoverticillata, rotundato-ovata, subsessilia, apice rotundata, basi leviter cordata, subcoriacea, supra laevia et nitentia, subtus opaca, margine paullo revoluta, utrinque subdense vel laxius lepidota (lepidibus parvis planis, margine angusto tenui irregulariter crenato vel angulato, centro minuto parum impresso), 1.5–2.5(–3.7) cm longa, 1–2 cm lata, costa supra anguste impressa, subtus praecipue basin dilatata versus prominente, nervis lateralibus 3–4-paribus utrinque sat obscuris, reticulatione nulla; petioli lepidoti 1–2 mm longi, 1–1.5 mm crassi. *Umbellae*, ut videtur, pauciflorae, vel ad florem unicum reductae; perulae statu gemmarum tantum cognitae, ciliolatae, dorso glabrae. *Pedicelli* graciles, dense patenter albo-pilosii, 8–11 mm longi. *Calyx* oblique patellaris, c. 3 mm diam.,

dorso pilosulus, intus glaber, vix lobatus. *Corolla* tubulosa, parum curvata et zygomorpha, tenuis, purpurascens, extus intusque glabra, tota 2.5—2.8 cm longa, tubo 2—2.3 cm longo, basi parum 5-saccato 3—4, ore c. 5 mm diam., lobis paullo expansis c. 5 mm diam. *Stamina* 10 corollae tubum subaequantia; filamenta glabra; antherae ellipticae, basi thecarum obtusae, ex coll. saturate purpureae, 1.8—2 mm longae. *Discus* subglaber. *Ovarium* cylindricum, dense breviter albo-pilosum, ut videtur elepidotum, 4 mm longum, 1.3 mm diam., sensim in stylum ipsa basi patenti-pilosulum ceterum glabrum abiens, stigmate subcapitato. *Capsula* nondum cognita.

NEW GUINEA. E a s t. Eastern Highl. Distr.: Kundiawa subdist., Loop Road, no. 2 Dom, Sina Sina, 2070 m, on rock in road cutting, fl. 22-3-73, LAE 58178 P. Stevens & L. Searle (LAE; L, type); ibid., Porul Ra., East Kundiawa, fl. 20-6-1970, L. Searle 27 (L, fragm.; LAE). Kainantu subdist., near Obura, Hays 208 (LAE).

A somewhat puzzling new species of subsect. *Buxifolia* without close relatives, in the key to be inserted near 172. *R. alternans* and 173. *R. leptomorphum*, both from Celebes, and markedly different from these in leaf and flower characters.

174. *R. pseudonitens* Sleum.

NEW GUINEA. E a s t. Central Dist.: Woitape subdist., Tsidibamul, 2745 m, NGF 38312; Mt. St. Mary, 3420 m, Szent-Ivany 5 (LAE); Mt. Dickson, 3505 m, Hartley 12988. — Morobe Distr.: above Bakaia, SE. of Garaina, 2745 m, Hartley 12819.

180. *R. alticolum* Sleum.

NEW GUINEA. E a s t. Morobe Dist.: Bulldog track, Edie Creek, 2745 m, fl. deep magenta, NGF 19974. E. slope of Spreader Div., 8 miles N. of Aseki, in mixed *Nothofagus* forest on ridge, 2250 m, fl. deep crimson, Schodde (& Craven) 4964. — Central Dist.: Woitape subdist., Tsidibamul, 3050 m, on sunny banks near track, fl. crimson, NGF 38304; S. slope of Mt. Albert Edward, West Dome, in shrubbery of alpine grassland, 3350 m, fl. scarlet, NGF 30055; Murray Pass, Wharton Ra., 2835 m, NGF 36812 (LAE).

The above cited specimens partly (incl. the specimen from Mt. Albert Edward, the type area) have larger leaves (up to 8 by 4 cm) than indicated in the original description of *R. alticolum*. They approach in that respect those of *R. sayeri* Sleum. (type from Mt. Obree), though the reticulation of the leaves of *R. sayeri* is much more distinct and, moreover, its flowers are smaller and the disk is hairy.

182. *R. luteosquamatum* Sleum.

NEW GUINEA. E a s t. Central Dist.: Iolo Creek, Lake Myola N. of Efogi, Gillison 337.

183. *R. inconspicuum* J. J. Sm. — 12. *R. invasorium* Sleum.

NEW GUINEA. E a s t. W. Sepik Dist., Star Mts., Sirius plateau, 3050 m, Craig 48. — Central Dist.: Iolo Creek, Lake Myola, N. of Efogi, Gillison 336, 339; Wharton Ra., Murray Pass, 2590—2895 m, NGF 36818, 48373, 48413 p.p. — Milne Bay Dist.: Mt. Suckling, S. spur of Goë Dendeniwa, 3220 m, LAE 54200; Mayu 2 Camp, 1745 m, LAE 54971, Veldkamp & Stevens 5988; ridge between Goë North and Manurep, 3350 m, Veldkamp & Stevens 5876.

R. invasorium, described from Edie Creek near Wau, seems to be a local form of *R. inconspicuum* with the leaf-scales thicker and less stellate to almost rounded, matched more or less by the specimens from the Wharton Ra. cited above.

R. inconspicuum seems to be absent both from the Finisterre and Saruwaged Mts., as far as known by now.

183. *R. inconspicuum* J. J. Sm. × 242. *R. macgregoriae* F. v. M.

NEW GUINEA. E a s t. Eastern Highl. Dist.: Chimbu, Yonggamul area, 1525—1830 m, fl. apricot with pink flush, *Searle 16*; Kundiawa-Goroka road, near Daulo, 2285 m, *NGF 20618*; near Nilghuma village, fl. pink, *Winters & Higgins 562* (L); Sina Sina, near road, 2135 m, fl. orange red, *NGF 12111* (growing together with *NGF 12113 = R. inconspicuum*, fl. dark red). — Also cultivated in the garden of Mr. L. Searle in Kundiawa.

All these materials bear small and large (up to 6 by 4 cm) leaves on the same branchlet, and are ± intermediate between the parents in floral and vegetative characters. The corolla is lobed almost halfway (never really reflexed as in *R. macgregoriae*), and the pollen is present.

187. *R. ultimum* Wernh.

NEW GUINEA. W e s t. Cliff on E. side of Carstensz meadow, 3150 m, fl. red, *ANU 10890* (CANB); lower Meren valley, 4000 m, *ANU 10920* (CANB).

Possibly to unite with 188. *R. brassii* Sleum., described from Mt. Wilhelmina. When more materials will break down the differences as to the size of the leaves in the key, *R. brassii* becomes certainly close to 204. *R. pachycarpon* Sleum., described from the Finisterre and Saruwaged Mts. about 1000 km distant from Mt. Wilhelmina.

191. *R. atropurpureum* Sleum. × 268. *R. culminicolum* F. v. M. var. *culminicolum*

NEW GUINEA. E a s t. Eastern Highl. Dist.: Mt. Wilhelm, on ridge above the field station, in scrub at 3500 m, fl. scarlet, 22-8-1968, *Philipson c.s. 3416* (L).

Ovary and filaments hairy, indicating the influence of *R. culminicolum*, otherwise almost as *R. atropurpureum*.

193. *R. wrightianum* Koord. var. *wrightianum*

NEW GUINEA. E a s t. Western Dist.: Kiunga subdistr., Ok Tedi headwaters, 1830—2120 m, *NGF 42761*, *42821* (LAE). — Morobe Dist.: Cromwell Mts., 2400 m, *Hoogland 9605*, *9659* (CANB); Mt. Rawlinson summit area, 2260 m, *Hoogland (& Van Deuseen) 9350* (CANB). — Central Dist.: Mt. Tafa, 2300 m, *Brass 4094* (L).

***var. insulare* Sleum.**

NEW GUINEA. E a s t. Milne Bay Dist.: Goodenough I., Mt. Vinevo, 1980 m, epiphyte in alpine mossy forest, J. Willmott (*Cruttwell 1422*), with a few hairs on the base of the style (K).

199. *R. keditii* Sleum.

BORNEO. S a r a w a k. 5th Div.: Lawas, Mt. Murud, 2135 m, *S 26462* (K).

200. *R. christi* Foerster

NEW GUINEA. E a s t. W. Sepik Dist.: Hindenburg Ra., Mt. Amdutakin, secondary forest, 2540 m, *Vink 17591*. — Western Dist.: Kiunga subdistr., Ok Tedi headwaters, 1830 m, *NGF 42833* (form with leaves shortly petiolate, base obtusely cuneate). — Eastern Highl. Dist.: near Gumine patrol post, *Searle 11*; Sina Sina, *Searle 12*. — Southern Highl. Dist.: Tari, Mt. Ambua, 2650 m, *NGF 28335*. — Madang Dist.: Saidor subdist., Naho-Rawa Div., Sewe, 2440 m, *NGF 19837*, *21396*.

204. *R. pachycarpon* Sleum. See also 187. *R. ultimum* Wernh.

NEW GUINEA. E a s t. Madang Distr.: Finisterre Mts., 2745 m, *NGF 21459*, *Pullen 6064*.

224. *R. moultonii* Ridl.

BORNEO. S a r a w a k. 5th Div.: Mt. Murud, 2400 m, fl. orange, 7-4-1970, *Nootboom & Chai 2006*.

229. *R. baenitzianum* Laut. — 230. *R. englerianum* Koord.

These species were distinguished in the key by the length of their pedicels. This character, however, seems to become irrelevant by several recent collections, and specimens can hardly be distinguished in the flowering state. There remains still the length of the fruit: 15—20 cm long in *R. baenitzianum*, versus 6—10 cm long in *R. englerianum*, so far known.

To *R. englerianum* seem to belong the following flowering specimens:

NEW GUINEA. E a s t. Western Distr.: Kiunga subdistr., Ok Tedi headwaters, 855 m, NGF 42771. — W e s t. Okwalimkan R. headwaters, 1220 m, NGF 33111.

231. *R. wentianum* Koord.

NEW GUINEA. W e s t. Panggema, E. of Baliem valley, 1530 m, *Sinke* 34 (L). — E a s t. Western Highl. Distr.: 4 miles from Kopiago on Koroba road, 1520 m, corolla yellow-orange in throat, lobes deep salmon, NGF 37306.

Leaves reported to be poisonous when eaten by sheep.

234. *R. subcordatum* Becc.

BORNEO. S a r a w a k. 2nd Div.: G. Tangga Saran, c. 900 m, S 19695.

Possibly only a glabrous form of 197. *R. verticillatum* Low ex Lindl.

245. *R. luraluense* Sleum.

BOUGAINVILLE. On the slopes of Lake Loloru crater (type locality), 790—1830 m, Craven (& Schodde) 188, 346, Schodde (& Craven) 3738, 3780, NGF 31288, 31409; Mt. Balbi, 2285—2440 m, Parker 5 (LAE), Latter 2 (LAE).

NEW GEORGIA GROUP. Kolombangara I., SW. summit peak, 1690 m, Whitmore R.S.S. 6360.

GUADALCANAL. Mt. Gallego, E. slopes and summit area, 915—1065 m, Dennis R.S.S. 2102, Whitmore R.S.S. 6065, Dennis BSIP 4627.

Possibly also: GUADALCANAL, summit area of Mt. Popomanasiu, Hill R.S.S. 9009 (K), Corner R.S.S. 120 (K), sterile specimens only seen.

The new materials from the type locality show leaves up to 7 by 4 cm, corollas up to 5 cm long, hairs and scales on the style restricted to its lower third, and fruits c. 3 by 0.6 cm. The specimens from the New Georgia Group and Guadalcanal differ by hairs and scales on the style limited to its lower fifth.

249. *R. scabridibracteum* Sleum.

NEW GUINEA. E a s t. W. Sepik Distr.: Bulindup W. of Oksapmin, 1980 m, NGF 41645 (LAE). — Western Highl. Dist.: between Kori R. and Mt. Ormogadzin on the Sepik-Wahgi Div., 2380 m, NGF 18110 A. — Eastern Highl. Dist.: near Okapa, 1830 m, Hornabrook 163A (LAE).

254. *R. aurigeranum* Sleum.

NEW GUINEA. E a s t. Morobe Distr.: Wagau, in rain forest, 1220—1370 m, NGF 19316, 23380, 23447; N. of Wagau airstrip, Buang region, 1220 m, NGF 17874; Mapos, near Snake R., Hooley 1 (LAE); Zenag, 1065 m, Hartley 9999; Zenag-Bulolo Road, 915 m, Philipson c.s. 3325; Wau, above airstrip, regrowth on edge of grassland, 1095 m, NGF 35200; ibid., Forestry road, regrowth, NGF 42150, 42152; Kaisenik road, in grassland-Banksia association, 1125 m, NGF 42144. — Cultivated in the town of Wau, and at the Forestry School at Bulolo (LAE 53035).

259. *R. lanceolatum* Ridl.

This rare species, of which the colour of the flowers was stated to be orange-yellow up to now, occurs also with white flowers.

BORNEO. Sarawak. 4th Div.: Kalabit Highl., Barito and surroundings, in heath forest and disturbed forest, sometimes epiphytic, 1000—1100 m, Nootboom & Chai 1675, 1815, 2128. 5th Div.: Ulu Limbang, 1600 m, Nootboom & Chai 2228; Sg. Belaban, Mt. Murud, on boulders at 2010 m, fr. submat. 3—3.7 by 0.6 cm, hairy, S 26323.

268. *R. culminicolum* F. v. M. var. *culminicolum*.

NEW GUINEA. West. Mt. Carstensz, slope between Meren valley and Carstensz meadow, 3660 m, ANU 10854 (CANB). — East. Milne Bay Dist.: Mt. Suckling (Goropu Mts.), 3000—3100 m, Veldkamp & Stevens 5622, 5815, LAE 54251.

var. *nubicola* (Wernh.) Sleum.

NEW GUINEA. West. Carstensz Mts., Crusher site, Camp 74, Otomona R., 2520 m, ANU 16050 (CANB).

268a. *R. blackii* Sleum., spec. nov.

R. n. sp. (a) in Kalkman & Vink, Blumea 18 (1970) 121, 134, 135.

Frutex 1—5 m altus, raro epiphyticus. Ramuli teretes, crassiusculi, apicibus laxe lepidoti; internodia 3—10 cm longa. *Folia* ad nodos 3—5 ultimos in pseudoverticillis (3—)4(—5)-meris disposita, ovata vel elliptico-ovata, interdum suborbicularia vel late obovata, apice rotundata vel latissime attenuata et obtusa, (sub)sessilia, basi profunde cordata, haud raro ramulos per 0.5—1.5 cm longe (sub)amplectentia, coriacea, in vivo supra saturate viridia, subtus pallidiora, novella utrinque lepidibus substellatis applanatis tenuibus ferrugineis subdense induta, matura imprimis supra glabrescentia, subtus diutius centro lepidum paullo impresso punctata, integra, plana, 5—8 cm longa, 3—6 (—8) cm lata, costa supra sat plana, subtus valde prominente, inferne dilatata, apicem laminae versus gradatim decrescente, nervis lateralibus 6—8 paribus, irregularibus, patentibus, ante marginem divisis, supra cum rete venarum sat obscuro impressiusculis, vel interdum prominulis, subtus semper prominulis; petioli applanati, 1—2 mm longi, 2—3 mm crassi. *Umbellae* 4—6-florae. Perulae exteriores (NGF 39724) ovatae, dorso laxe lepidotae, interiores subspathulatae, dorso superne pilosae et lepidotae, usque ad 2 cm longae et 1 cm latae. Bracteolae subspathulato-lineares, superne dorso pilosae et lepidotae, usque ad 2 cm longae et 2 mm latae. Pedicelli rubescentes, crassiusculi vel crassi, subdense lepidoti, pilosi, sub plena anthesi 1.5—2 cm longi, sub fructu paullo accrescentes. *Calyx* discoideus, parum obliquus, c. 5 mm diam., brevissime 5-lobus, laxe lepidotus. *Corolla* oblique tubulosa, tubo orem versus paullo dilatata, parum curvata, carnea, carminea vel saturate rubra, extus ubique laxe lepidota, intus ad tubum laxe patenter pilosa, tota in sicco 4—5.5(—6.2), in vivo usque ad c. 8 cm longa, tubo in sicco 3.5—4.5, in vivo usque ad 6.2 cm longo, in vivo basi c. 0.7, ore 1—1.3, in sicco basi 0.4—0.5, ore c. 1 cm diam., lobis suberectis vel parum patentibus suborbicularibus vel subspathulatis in vivo ± 2, in sicco 1—1.5 cm longis resp. lati. *Stamina* 10, corollam longitudine ± aequantia; filamenta linearia, in inferiore media parte dense vel laxius pilosa, ceterum glabra; antherae oblongae, basi obtusae, c. 3 × 1 mm. *Discus* prominens, glaber. *Ovarium* subcylindricum, flavidо-tomentosum denseque lepidotum, c. 6 mm longum et 3 mm diam., ± gradatim in stylum abiens; stylus inferne per 2—3 mm lepidotus et pilosus, superne glaber, corollae tubum subaequans, stigmate subcapitato 5-lobulato. *Capsula* subcylindrica, parum obliqua, basin versus paullo angustata, ± dense flavo-tomentosa et lepidota, matura, c. 4 cm longa et 5—6 mm diam.

NEW GUINEA. East. Western Highl. Distr.: Kandep-Laigap Div., 2950 m, NGF 24547 Womersley & Black (LAE); 24 miles from Wabag, Wabag-Laiagam road, 2745 m, NGF 15234 Womersley (LAE); ecological

site n. 33, 4 miles W. of Wabag, 2710 m, *Flenley ANU 2579* (A, BRI, CANB, K, L, LAE). — Southern Highl. Dist.: Tari subdist., Ibiwara, 2560—2710 m, *NGF 25152 Gillison, Vink 16991*; Mt. Ambua, 3390 m, *Vink 17280* (K; L, type; LAE, and c. 13 dupl. to other herbaria); ibid., S. slope of Mt. Ambua, Lei camp at 2620 m, *NGF 28220 Frodin*; N. slope of Mt. Kerewa, 2940—3220 m, *Vink 17041, 17078*; Mendi subdist., track up to Mt. Giluwe, 3170—3225 m, *NGF 39724 & 39748 Vandenberg, Katik & Kairo*.

In montane rain forest and forest margin, also in secondary forest with climbing bamboo, even in fire induced grassland with *Gleichenia* and shrubs, 2560—3390 m. In cultivation in the garden of Mr. Michael Black at Grasmere, Westmorland, England, and also in Australia (seeds of *Vink 17041*).

Close in floral characters to *R. culminicolum* var. *culminicolum*, but sufficiently distinguishable by its deeply cordate to subauriculate and sessile leaves.

268b. *R. praetervisum* Sleum., spec. nov.

Frutex epiphyticus. Ramuli divaricati, novelli teretes, laxe lepidoti, cito glabrat, c. 2 mm diam., vetustiores cortice griseo obtecti; internodia (2—)3—5 cm longa. Folia in pseudoverticillis 4—5-meris disposita, anguste oblonga, apice rotundato-obtusa, interdum minute retusa, basi subtruncato-rotundata, coriacea, supra in sicco virescenti-cinerascentia, subtus brunnescens, matura supra glabra, subtus laxe usque subdense lepidibus substellatis centro sat magno impressis induta, integra, margine ± revoluta, (4—)5—7(—8) cm longa, (1—)1.5—2.5(—3) cm lata, costa supra valde impressa, subtus crasse prominente, nervis lateralibus c. 6-paribus supra minute vel vix impressis, subtus parum visibilibus, reticulatione obscura; petioli 2—4(—5) mm longi, 2(—3) mm crassi. Umbellae subterminales c. 4-florae. Perulae ovatae, exteriores dorso laxe lepidotae vel glabrae, usque ad 6 mm long. visae; bracteolae filiformes. Pedicelli subgraciles, dense breviter patentipilosus laxeque lepidoti, sub anthesi 2—2.5 cm longi. Calyx oblique discoideus, obtuse 5-lobatus, dorso lepidotus et parcepilosus, 2.5—3 mm diam. Corolla tubulosa, carnosula, rosea usque saturate rubra, vel purpurea, extus laxe substellato-lepidota, intus inferne laxe brevipilosa, tubo parum curvato in sicco 4—4.5 cm longo, basi 5-saccato et 4—5 mm diam., orem versus 6—10 mm diam., lobis late spathulato-ovatis modice expansis 1—1.5 cm longis, 0.6—1 cm latis. Stamina c. 5 cm longa; filamenta inferne laxe pilosa, superne glabra; antherae oblongae, basi minute apiculatae, 2.5 mm longae. Discus prominens glaber. Ovarium elongato-conicum, dense brevipilosum et lepidotum, c. 5 mm longum et 2 mm crassum, gradatim in stylum ipsa basi pilosum ceterum glabrum gracilem longitudine corollae tubum subaequantem abiens, stigmate oblique capitato. Capsula adhuc ignota.

BORNEO. Sabah. Mt. Kinabalu, west trail Sabah National Park headquarters, epiphytic in primary forest on ridge top, 1280 m, fl. 22-10-1965, *SAN 44622 Lajangah* (L, type SAN); ibid., mile 35 Ranau road, Bundu Tuhan trail, 1645 m, *SAN 56311*; Tenompok, 1525 m, *J. & M. S. Clemens 29950*; Gurulau Jungle ridge, 1830 m, *J. & M. S. Clemens 50398*; Mesilau Hill, 2135 m, *Poore H. 65*; Mesilau R., 1525 m, *RSNB 4284 Chew & Corner*; ibid., old trail between Mesilau Cave and Janet's halt, 1970 m, *Fuchs (leg. Sh. Collenette) 21580* (L); Bambangan R., 1525 m, *RSNB 4441 Chew & Corner*.

For some time I have considered this new species to be a form of *R. longiflorum* Lindl. with a glabrous style, limited to the Mt. Kinabalu area, and have cited the specimens collected before 1960 under that species in my precursory paper (*Reinwardtia* 5, 1960, 210). More material has been collected on Mt. Kinabalu since, especially on the eastern shoulder, with a constant combination of vegetative and floral characters, which discriminates it well from typical *R. longiflorum*, a species which seems to be absent from Mt. Kinabalu altogether. In the key the new species comes close to 268. *R. culminicolum*, from which it differs already by its narrow oblong leaves, with the nerves and reticulation ± obscure on both faces.