

MISCELLANEOUS NOTES ON LORANTHACEAE 16—18

by

B. H. DANSEER

(Botanical Laboratory of the University, Groningen, Netherlands).

16. What is *Viscum monilliforme* Blume? (Plate I)

BLUME published *Viscum monilliforme* first with a short diagnosis in his "Bijdragen tot de Flora van Nederlandsch Indië" 13 (1825) p. 667, and later he gave a figure of it in his "Flora Javac", plate 25 (1851?).

In the "Bijdragen" we read:

VISCUM MONILLIFORME, Bl. V: caule aphylo inferne teretiusculo, ramulis articulatis ancipitibus, articulis nudis, floribus verticillatis sessilibus (aff. V. opuntioidi). *Crescit*: in arboribus circa Buitenzorg vulgatissimum. *Floret*: omni tempore. *Nomen*: Mangando.

As the *Loranthaceae* growing in the vicinity of Buitenzorg are very well-known, and BLUME speaks of a very common species, and mentions no other leafless species, it is certain that the *Viscum monilliforme* of BLUME's "Bijdragen" is the common *Viscum articulatum* BURMAN FIL. The remark "aff. V. opuntioidi" alludes to his "Catalogus" of 1823, where, for the Buitenzorg Botanic Garden, he only mentions *Viscum orientale* and *V. opuntioides*, the former representing *Viscum ovalifolium* DE CANDOLLE, the latter undoubtedly *Viscum articulatum*.

On the above cited plate of the "Flora Javac", we, however, find, under the name *Viscum monilliforme*, not *Viscum articulatum*, but *Korthalsella opuntia* (THUNBERG) MERRILL. The plant, as well as the details, is unmistakable. It is a small specimen, figured as parasitic on *Viscum "orientale"* (recte: *V. ovalifolium* DE CANDOLLE).

It is impossible that BLUME, in his "Bijdragen", could have meant *Korthalsella opuntia*. This has never been found in the vicinity of Buitenzorg, and very probably cannot grow there, as, in the tropics, it is a high mountain species, and in Java it has, hitherto, not been found below 1400 m altitude. Moreover, I found, during my four years' stay at Buitenzorg, often small plants of *Viscum articulatum* parasitic



On the left a photo of Plate 25 of the *Loranthaceae* in BLUME'S "Flora Javae", representing "*Viscum moniliforme*" parasitic on "*Viscum orientale*" (in reality *Korthalsella opuntia* on *Viscum ovalifolium*). On the right, a photo of the specimen in the Leiden National Herbarium, from which this plate was drawn, the small parasite actually being *Viscum articulatum*. (Photos by JAC. VEENHOFF, Groningen.)

on *Viscum ovalifolium*, whereas, to my knowledge, *Korthalsella opuntia* has never been found parasitic on *Viscum*. Also the specimen of *Viscum monilliforme*, seen by me in the type-herbarium of DE CANDOLLE in Geneva, and which was collected in Java and sent to DE CANDOLLE by BLUME, is a small specimen of *Viscum articulatum*.

Whence this discordancy between the "Bijdragen" and the "Flora Javae" ?

In 1937, I found, in the National Herbarium, Leiden, on sheet No. 908, 128—78, and inserted under *Viscum orientale*, the specimen from which, without doubt, the plate in question of the "Flora Javae" was drawn, representing *Viscum monilliforme* parasitic on *V. orientale*. (See the plate.) This plant, indeed, is *Viscum ovalifolium*, bearing as a parasite a small, mutilated plant of *Viscum articulatum*!

We can only guess in what way *Korthalsella opuntia* appeared on the plate in the "Flora Javae". I presume as follows.

The text of part 13 of the "Bijdragen" was published in 1825, and was probably written shortly before, when BLUME still lived at Buitenzorg. *Viscum articulatum*, so common there, had first been called by him *Viscum opuntioides* (see his "Catalogus"), and soon afterwards *Viscum monilliforme* (see his "Bijdragen"). The plate for the "Flora Javae" representing *Viscum articulatum*, and bearing the name *Viscum compressum* (plate 26), certainly was provided with this name much later, when BLUME already lived in Holland, and, according to a note on a herbarium label in the Leiden National Herbarium, written by MOLKENBOER, who wrote the *Loranthaceae* for MIQUEL's "Plantae Jung-huhnianae", was not published before 1851. At that time, BLUME certainly had already come to the conclusion that the leafless *Viscum*, so common in the vicinity of Buitenzorg, was no new species, but had to be called *Viscum compressum*, and he must have restricted the name *Viscum monilliforme* to the small plants of this species found by him parasitic on *Viscum ovalifolium*. Perhaps, after so many years, he had no clear idea of these plants, and, wishing to publish a plate of them, he identified the one small mutilated specimen he had in his herbarium, with the similar small specimens of *Korthalsella opuntia* from Japan, also present in his herbarium; and to the draughtsman who had to draw the plate for the "Flora Javae" he furnished such a specimen of *Korthalsella opuntia* to replace the mutilated small specimen of *Viscum articulatum*.

It being certain, as I have already shown in the above, that the original *Viscum monilliforme* of the "Bijdragen" is nothing but *Viscum*

articulatum, we must bear in mind that, in spite of the fact that the *Viscum monilliforme* of the "Flora Javac" is a *Korthalsella*, the specific epithet *monilliforme* can never have significance for the nomenclature of any *Korthalsella*.

17. **New Clemens-numbers from Mt. Kinabalu, Borneo.**

(Supplement to Note 7, in *Rec. trav. bot. néerl.*, 31, p. 751—758, and Note 12, in *Blumea*, II, p. 39—42.)

Loxanthera loxanthera (DE CANDOLLE) DANSER — Penibukan, side ridge, 4000 ft el., 7 X 1933, CLEMENS 40613 (L), on the 220' Sapot tree, flowers previously sent from this same shrub found under the Sapot, flowers pink.

Macrosolen flammeus DANSER — Gurulau Spur, 8000 ft el., low on stumpy shrub, 8 XII 1933, CLEMENS 50833 (L), flowers with red base, purplish neck, tip greenish yellow.

Macrosolen splendidus DANSER — Penibukan, jungle ridge, 3500 ft el., 27 IX 1933, CLEMENS 40747 (L); *ibidem*, 4000 ft el., 9 X 1933, CLEMENS 51697 (L), on large tree, flower red, white and bluish; *ibidem*, CLEMENS 40286 (L), flowers scarlet gray and dark gray.

Amyema Beccarii (VAN TIEGHEM) DANSER — Penibukan ridge, jungle ridge, 4000 ft el., X 1933, CLEMENS 40375A (L), on oak, flower pink; Dahobang River forest, 4000 ft el., 15 IX 1933, CLEMENS 40375 (L), shrub, flower red, calyx and segments green.

Helixanthera coccinea (JACK) DANSER — Penibukan, ridge above Dahobang, 3500 ft el., 1 IX 1933, CLEMENS 50045 (L), shrub, flower red; Gurulau spur, jungle crest, 5000 ft el., 26 XI 1933, CLEMENS 50510 (L), on 100' tree, flower dark red.

Helixanthera spicata DANSER — Penibukan ridge, 5000 ft el., 7 XI 1933, CLEMENS 50226 (L), flower pinkish red, fruit dark purple (only fruits present).

Trithecanthera superba DANSER — Penibukan, jungle ridge, 4000 ft el., 18 X 1933, CLEMENS 40785 (L), on 80' tree, fruit green, brown terminal.

Ginalloa arnottiana KORTHALS — Kinabalu foot hills, Bungal, 3000 ft el., 1 I 1934, CLEMENS 51299 (L), on 58 ft *Eugenia*.

Ginalloa nuda DANSER — Dahobang River ridge, near river, 3000 ft el., 27 IX 1933, CLEMENS 40483 (L), parasite on tree, flower cream, fruit green; Penibukan, W. ridge, 4500 ft el., 4 X 1933, CLEMENS 40483a (L), parasite on 60' tree.

Completed description: Very slender, to 60 and more cm long, en-

tirely glabrous, strongly branched, many times di-tri-chorous, the branches spreading at their bases; young internodes very thin, terete, superficially grooved, usually 1.5—4 cm long, nearly 0.5 mm in diameter, slightly thickened towards the apex, the older ones more exactly cylindrical, slightly thickened at the nodes, the oldest ones less distinctly ribbed but somewhat rough, up to 3 mm in diameter. Pairs of leaves reduced to collars for the greater part, here and there, usually at the tips of branches, normally developed; normal leaves sessile, lanceolate, or somewhat ovate-lanceolate, or rarely somewhat spatulate, gradually attenuate towards the base and the subobtusate or rarely rounded apex, 2—5 cm long, 2—10 mm broad, nearly equal above and below, dull, with one or three longitudinal nerves visible, but usually indistinct; each pair of reduced leaves connate to a collar around the node, slightly visible as two short points especially when very young, the collar nearly 0.5 mm long, infundibuliformous. Inflorescences terminal on the tips of the branches and axillary, but very seldom in the axils of normal leaves, minute spikes of usually 2—4, rarely up to 6, internodes, and usually 1—2, rarely more, mm long, usually sessile, rarely short-peduncled, the pairs of bracts entirely connate to collars, the axils distinctly decussate, the collars 0.75—1 mm wide, the flowers single in the axils, apparently female. Female flower short-cylindrical in the very youth, its flowering stage indistinct, later developing to an ellipsoidal fruit, at last to 8 mm long, constricted below the persistent and somewhat enlarged, up to 0.5 mm long, short-ovate, connate tepals; seed flattened, elliptical, nearly 7 mm long, 4 mm broad. (Description from the materials above mentioned, that of the seed taken from the original description in *Rec. trav. bot. néerl.*, 31, p. 229.)

The arrangement of the flowers in the spike seems to differ from that found in the species with larger inflorescences, where we have spikes of decussate triads, with the middle flowers female, the lateral ones male. Perhaps there is more resemblance with the inflorescence of *Ginalloa linearis* DANSER, as described by RUTISHAUSER, in *Berichte Schweizer. Botan. Gesellsch.*, 47 (1937) p. 17.

18. On a number of Loranthaceae from Eastern New Guinea.

Through the courtesy of the Directors of the Herbaria of the New York Botanical Garden (NY), the Botanical Museum at Berlin-Dahlem (BD), and the State Herbarium at Leiden (L), I had the opportunity to determine the *Loranthaceae* collected on three different expeditions

in Eastern New Guinea, by Mr. L. J. BRASS in 1933 and 1934, the late C. E. CARR in 1935 and 1936, and Mrs. M. S. CLEMENS in 1935, 1936, and 1937. Four new species, collected by CARR, were already published elsewhere (*Brittonia* II, 2, 1936). Yet the further results justify a short publication, not only because of the five species, the two new varieties, and the section of a genus they offer new to science, but also for the many new data about the distribution of several little-known species.

I, 1. ***Amylotheca papuana*** DANSER, n. sp. — Subrobusta, omnis glabra. Internodia iuniora basi teretia vel paulum applanata, apicem versus ancipita, incrassata et valde dilatata, foliifera 6—8.5 cm longa, basi 3—4 mm diametro, nodis ad 12 mm latis. Folia sessilia, ovata, basi rotundata, apice obtusissima, 8—9 cm longa, 4—5 cm lata, tenuiter vel crassiuscule coriacea, supra lucidula, subtus opaca, utrinque nervatura omni distincta, costa facie inferiore basin versus crassissima. Inflorescentiae racemuli triadum 4 decussatarum subsessilium, floribus omnibus sessilibus, circum nodos foliiferos dense aggregati; axis circiter 2.5 mm longus, 1.75 mm latus, triadibus binis in apice insertis, binis prope basin; bractee rotundatae obtusissimae, margine membranaceo saepe lacerato, calycum bases amplectentes, 1.5—2 mm longae. Calycis tubus subcylindricus, circiter 2 mm longus, 1 mm latus; limbus erectus, paulo latior, margine membranaceo saepe lacerato. Corolla statu alabastri adulti acute sexangula, angulis etiam prominentibus, ad 20 mm longa, basi circiter 1.5 mm, apicem versus circiter 1 mm lata, parte superiore antheras continente teres (non angulata). Cetera ignota.

Peculiar by the short and dense inflorescences, and the sessile leaves rounded at the base.

S. E. New Guinea, Isuarava, secondary forest on tree, c. 4500 ft alt., 10 II 1936, CARR 15502 (BD, L), parasite, flowers pale grayish olive, crimson inside, apex crimson.

I, 2. ***Amylotheca triflora*** (SPANOGHE) DANSER — Cfr. *Bull. Jard. Bot. Buitenzorg*, sér. 3, XI, p. 250.

Morobe, Yunzaing, forest, 4500 ft alt., 25 VI 1936, CLEMENS 3460 (BD), shrub, fruit lined or striped, on big *Calophyllum*; *ibidem*, 12 VIII 1936, CLEMENS 3847 (BD), shrub, large clump, flower red at base, yellow green corolla; Boridi, forest, 4800 ft alt., 10 IX 1935, CARR 13060 (BD, L), parasitic on trees, flowers red, base crimson; *ibidem*, 4200 ft alt., 8 IX 1935, CARR 13013 (L), flowers red with deep crimson base; *ibidem*, 4000 ft alt., 2 X 1935, CARR 14348 (BD, L), fruit green, striped darker; Isuarava, forest, on tree, 4500 ft alt., 4 II 1936, CARR 15166 (BD, L), parasite.

Var. *pedicellata* DANSER, nov. var. — *Triadum flores laterales breves pedicellati*.

Central Division, Laloki River, Rona, 450 m alt., 11 II 1933, BRASS 3622 (L, double from NY), one plant seen, parasitic on a gully forest tree, compact densely branched small shrub, leaves fleshy, grey-green, midrib visible on both sides, perianth purplish; Koitaki, 1500 ft alt., 28 IV 1935, CARR 12077 (DB, L, type), parasitic on a tree in the open, flowers pale pink with a crimson ring at the base; Rouna, hill forest, 1400 ft alt., 12 VII 1935, CARR 12836 (BD, L), fruit red.

Amylothea triflora was known, hitherto, from only two collections in New Guinea, viz., the plant collected by KLOSS on the Wollaston Expedition, and that collected by BECCARI in the Arfak Mountains, and on which VAN TIEGHEM based his *Decaisnina Beccarii*. This name I formerly, but wrongly, supposed to be a synonym of *Amylothea parvifolia* DANSER. I now have examined the type in the Paris Herbarium, and this is the most common form of *Amylothea triflora*, with the lateral flower of the triads sessile. We now know that *Amylothea triflora* also occurs in Eastern New Guinea.

The numbers BRASS 3622 and CARR 12077 resemble each other so closely that they could have been collected from the same specimen. Both have the inflorescences short and slender (axis up to 12 mm long and 0.75 mm in diameter at the base), and with only few pairs of triads, the lateral flowers of which have distinct, though short, pedicels (less than 0.5 mm long); the flowers are very delicate. The former specimen has no well-developed flowers; CARR 12077 has the corollas and styles up to 28 mm long, the free portion of the filament to 5.5 mm, the anther to 1.5 mm long; the leaves are narrow, lanceolate, obtuse, partly very thick, rather hard, but for the rest show the common characters of those of the species. The last number, CARR 12836, is only very sparse material, but entirely agrees with the type of the variety. Perhaps these plants represent a new species, but as they have no outstanding characters, I provisionally prefer to accept them as a variety of *Amylothea triflora*.

I, 3. *Amylothea Versteegii* (LAUTERBACH) DANSER — Cfr. Bull. Jard. Bot. Buitenzorg, sér. 3, XI, p. 251, 247; XIV, p. 79.

Morobe, Yunzaing, on forest tree, 4000—5000 ft alt., 23 IV 1936, CLEMENS 2931 (BD), shrub, flower base red, apex yellow; Western Division, Oriomo River, Dagwa, 40 m alt., II—III 1934, BRASS 5966 (L, double from NY), common on trees of savannah and gallery forests, large parasitic shrub, leaves shining, yellowish underneath, flowers

showy, perianth red in the lower part, green in the upper part, panicles secund; Veiya, sea level, 8 III 1935, CARR 11597 (BD, L), parasitic on trees, petals yellow with a scarlet base, apex yellow-green; Isuarava, 1 II 1936, CARR 15331 (L), parasite, fruit light green suffused dull red; Isuarava, secondary forest on tree, 4500 ft alt., 1 II 1936, CARR 15330 (BD, L), parasite, flowers bright yellow with orange-red base, petal lobes yellow-green; *ibidem*, 4000 ft alt., 17 II 1936, CARR 15617 (BD, L), parasite, fruit dark red.

The numbers BRASS 5966 and CARR 11597, 15330 and 15617, mainly agree with the common form of the species, that is spread not only all over New Guinea, but even as far as New Ireland and the Aru Islands, but they are peculiar by leaves with nearly the whole nervation distinct. The number CARR 15617 has unripe fruits, CARR 11597 only flower buds not yet adult, CARR 15330 probably adult flower buds, BRASS 5966 adult flower buds and open flowers, and the corollas and styles of these are longer than usual, *viz.*, 40—43 mm long. By this, and by the strong nervature of the leaves, the latter specimen comes near to the closely allied *Amylothea longifolia* (KRAUSE) DANSER, but the lateral flowers of the triads are shortly pedicelled. I do not doubt but that the number FORBES 499, from the Sogeri Region, that, in my former revision, I included in *Amylothea longifolia*, is the same form.

Var. **Clementium** DANSER, nov. var. — Robustior, omnis glabra. Ramuli foliiferi et floriferi internodiis ad basin quadriangulis vel rotundato-quadriangulis, apicem versus dilatatis et acutius quadriangulis, fere anguste alatis, lateribus planis vel cavis, plerumque 3—6 cm longis, basi 4—6 mm diametro, apice duplo vel triplo latioribus, internodiis vetustioribus gradatim magis teretibus, insertionibus foliorum tuberculatis. Folia opposita vel subopposita; petiolus plerumque 1—3 cm longus, basi 2.5—4 mm crassus, teres vel supra nonnihil applanatus, laminam versus supra late et leviter canaliculatus; lamina oblonga, 10—20 cm longa, 4.5—9 cm lata, basi breve in petiolum contracta, obtusa vel apicem obtusum versus breve acuminata, crassiuscule coriacea, faciebus valde diversis, superiore semilucida, inferiore opaca badiuscula, costa supra leviter, subtus valde prominente, nervis ceteris fere omnibus utrinque distinctis leviter prominentibus, margine plano vel subrevoluto. Inflorescentiae singulae in axillis foliorum vel gregatim in nodis defoliatis, axi 2—5 cm longo, parte inferiore 5—15 cm longa tantum nudus, basi 2—3.5 mm diametro, teres, apicem versus gradatim attenuatus, insertionibus triadum leviter incrassatis; pedicelli triadum decussati vel sparsi, valde secundi, teretes, circiter 4 mm longi 0.6 mm diametro;

pedicelli florum lateralium circiter 0.5 mm longi et crassi; bractea ovato-oblongae, obtusae vel obtusiusculae, concavae, circiter 1.5 mm longae. Calycis tubus cylindricus vel leviter ellipsoideus, 2.5—3 mm longus, 1—1.25 mm latus, limbus erectus vel patens, circiter 0.2 mm longus, integer vel irregulariter laceratus. Corolla statu alabastri adulti 35—40 mm longa, supra basin rotundatam 1.5—3 mm lata, dimidia parte inferiore gradatim attenuata, usque ad partem superiorem cylindricam antheras continentem acute 6-angula, apice obtusissima, postea usque ad circiter 5 mm supra basin divisa in lacinas 6 lineares obtusas nonnihil cucullatas, sub parte superiore 9—10 mm longa acute reflexas. Filamenti pars libera 2—3 mm longa, difficile distinguenda ab anthera 6—7 mm longa, angusta, acuta, loculis continuis. Stylus filiformis, rectus, corollae aequilongus, stigma versus vix attenuatus; stigma ellipsoideus, styli apice vix crassius. Fructus immaturus ellipsoideus, maximus 6 mm longus 4 mm diametro, calycis limbo persistente, disco plano, et styli parte basali brevi coronatus. (Description from all the specimens from the Sattelberg mentioned below.)

This *Amylotheca* belongs in the neighbourhood of *A. Versteegii* (LAUTERBACH) DANSER, *A. Hollrungii* (K. SCHUMANN) VAN TIEGHEM, *A. longifolia* (KRAUSE) DANSER, *A. salomonica* DANSER, and *A. angustifolia* VAN TIEGHEM, but comes nearest to *A. Versteegii*, differs, however, from this by the internodes, that are strongly quadriangular and dilated towards the apex, and the distinct nervation of the leaves. The latter character reminds *A. longifolia*; the peculiar quadriangular twigs are found in none of the species enumerated in the above, though *A. Hollrungii* sometimes has the young twigs slightly angular. I should have based a new species on this form, if I did not suspect all these species to be only varieties of one polymorphous species.

Morobe District, Sattelberg, margin of woods below cow-barn, 3000 ft alt., 1 X 1935, CLEMENS 289 (BD), shrub, base of flower deep red, above pale green, fruit green, red apex; *ibidem*, forest hill, 3500 ft alt., 8 X 1935, CLEMENS s.n. "supplement" (BD), flower base red, upper half yellow, type of the variety; *ibidem*, tree on trail below church, 3000 ft alt., 23 X 1935, CLEMENS 563 (BD), shrub, fruit green with reddish apex; *ibidem*, parasite on 50' tree (*Melia*) in front of grotto waterfall, 3000 ft alt., 5 XI 1935, CLEMENS 782 (BD), height of plant 10', diameter breast height 4", orange berry lost; Ogeramngang to Malang, 5000 ft alt., 17 XII 1936, CLEMENS 4724 (BD), flower yellow and red; Morobe, Ogeramngang, 5800 ft alt., 12 II 1937, CLEMENS 5385 (BD), flower red at base, yellow green upwards.

II, 1. *Dactylophora verticillata* (SCHEFFER) VAN TIEGHEM — Cfr. Bull. Jard. Bot. Buitenzorg, sér. 3, XI, p. 358; XIV, p. 87.

Boridi, secondary forest on trees, 3800 ft alt., 21 X 1935, CARR 14641 (BD), flowers red, tipped green ochre; Kanosia, sea level, 10 II 1935, CARR 11239 (BD, L), parasitic on No. 11237, flowers deep rose-red, yellowish towards the apex; *ibidem*, 4 III 1935, CARR 11577 (BD, L), parasitic on *Rhizophora* No. 11513, flowers bright rose-red in lower half, bright yellow in upper half.

The species was known, hitherto, only from Doré and Kofo, both not far from Manoekwari. The new materials show a greater variation. The first number does not belong with certainty to the species, as the flowers are only half developed and the nodes and inflorescences are rusty short-tomentose. The leaves of the other specimens are more often ovate and obtuse, the inflorescences are not, or not always, inserted on the runners, the filaments vary from 2 to 4 mm in length. The differences of *Dactylophora Novae-Guineae* (BAILEY) DANSER and *D. salomonica* DANSER with *D. verticillata* now appear to be very unimportant.

III, 1. *Amyema artensis* (MONTROUSIER) DANSER — Cfr. Bull. Jard. Bot. Buitenzorg, sér. 3, XIV, p. 89.

Morobe District, Sattelberg, margin of jungle, 3000 ft alt., XII 1935, CLEMENS 1331 (BD), flower orange-red; Kanosia, sea level, 5 IV 1935, CARR 11783 (BD, L), parasitic on tree, fruit dull red; Kanosia, 50 ft alt., 10 II 1935, CARR 11242 (BD, L), partial parasite, on trees in light forest, flowers orange-yellow, apex yellow-green.

Moreover I can add:

Saruwaged Mts., three days journey west of the Sattelberg, 1200 m alt., III 1913, KEYSSER s.n. (BD); in the accompanying cover I found an umbel ray and a few detached flowers of another species, probably *Amyema strongylophylla* (LAUTERBACH) DANSER.

This is the same species I formerly mentioned for New Guinea under the name *Amyema Bamleri* (K. SCHUMANN) DANSER; for the synonymy see l.c.

III, 2. *Amyema barbellata* (BLAKELY) DANSER — *Loranthus barbellatus* BLAKELY, in Proc. Roy. Soc. Queensl., 34, p. 27 (1922); *Loranthus obtusus* K. KRAUSE, in Bot. Jahrb., 57, 4 (1922) p. 465, 479; ENGLER & KRAUSE, in ENGL., Nat. Pflanzenfam., ed. 2, 16b (1935) p. 150; *Loranthus rigidiflorus* K. KRAUSE, in Bot. Jahrb., 57, 4 (1922) p. 480, ic. 2, A—C; *Amyema barbellata* & *A. rigidiflora* DANSER, in Bull. Jard. Bot. Buitenzorg, sér. 3, X, 3 (1929) p. 294, 298; XI, 3—4 (1931) p. 324, 344;

in Verhand. Kon. Akad. Wetensch. Amsterdam, afd. Natuurk., sect. 2, XXIX, 6 (1933) p. 26, 33.

Morobe, Yunzaing, forest tree, 4000—5000 ft alt., 18 IV 1936, CLEMENS 2370 (BD) partly, flowers yellow and red; *ibidem*, 22 VI 1936, CLEMENS 3381A (BD), flower flame color, segments yellow to orange; 23 VI 1936, CLEMENS 3415 (BD), flower flame, segments yellow; Yoangen, mountain trail, forest hill, on big *Ficus*, 4000—5000 ft alt.? 18 VI 1936, CLEMENS 3381 (BD, L), shrub, flower segments yellow, pistil and base red flame; Ogeramngang, high forest, 6000 ft alt., 31 XII 1936, CLEMENS 4803 (BD); Ogeramngang, on mighty *Eugenia* by rivulet, below water supply, 5800 ft alt., 20 I 1937, CLEMENS 5115 (BD, L), shrub, flower bronze to red, yellow tinge; Rouna, 1300 ft alt., 26 V 1935; CARR 12338 (BD, L), parasitic on tree in open savannah land, flowers golden yellow with pinkish orange base.

Determining the above specimens with my own key (i.e., p. 320—322) and description, I must identify them with *Amyema barbellata*, but, accepting the tips of the petals as non-bearded, I see no differences with *A. rigidiflora*. Indeed, these two species are only slightly different. CARR's no. 12338 has corollas 22—24 mm long, with the tips of the petals bearded inside, and the calyces glabrous. Mrs. CLEMENS's plants have corollas 25—30 mm long, with petals bearded at the tip, and tomentose calyces. The plants from the Talaud Islands and New Guinea, formerly mentioned by me as *Amyema rigidiflora*, have corollas nearly 28 mm long, petals not bearded at the tip, and tomentose calyces. The plant described by BLAKELY as *Loranthus barbellata* has corollas 25 mm long, the petals bearded at the tips, and the calyces glabrous. I cannot discover more important differences between them, and therefore prefer to take them all together as one species, and to consider *Amyema rigidiflora* as a synonym of *A. barbellata*. Perhaps I overlooked the bearded petals in *Amyema rigidiflora* formerly. The specific epithet "*barbellata*" probably is a few months older than "*rigidiflora*".

III, 3. *Amyema cephalanthera* DANSER, in Brittonia, II, 2 (1936) p. 131, t. 1, a—c.

Western Division, Oriomo River, Wuroi, 30 m alt., I—III 1934, BRASS 6023 (L, double from NY, type), not uncommon, parasitic on savannah forest tree, of scandent habit, main branches closely appressed to trunk of host tree, flowers showy, perianth and style pink, stamens red.

III, 4. *Amyema clavipes* DANSER, in Brittonia, II, 2 (1936) p. 132, t. I, d.

Sarawaket, Camp Busu Tamunac, 30 I—1 II 1937, CLEMENS s.n. (BD, L); Central Division, Mt. Tafa, 2400 m alt., IV 1933, BRASS 4972 (L, double from NY, type), parasitic on a ridge crest forest tree, midrib and nerves slightly raised on upper surface, obscured beneath, petioles and leaf margins red, peduncles and perianth red, perianth darker at base; Main Range, N. W. of Gap, forest on tree, 8000 ft alt., 22 I 1936, CARR 15227 (BD, L), leaves suffused red with red margins, flowers and fruit red.

Perhaps a form of low elevations of *Amyema pachyppus* (see below), differing from this by larger leaves, and more slender twigs and inflorescences.

III, 5. *Amyema corniculata* DANSER, in Brittonia, II, 2 (1936) p. 133, t. I, e—g.

Central Division, Wharton Range, Murray Pass, 2840 m alt., VI—IX 1933, BRASS 4564 & 4564a (L, double from NY, type), common, parasitic on forest trees, leaves soft and fleshy, perianth red.

III, 6. *Amyema finisterrae* (WARBURG) DANSER — Cfr. Bull. Jard. Bot. Buitenzorg, sér. 3, XI, p. 332.

Entirely glabrous. Twigs terete, slightly thickened at the nodes, the internodes usually 2—3 cm long, those bearing full-grown leaves 1.5—2.5 mm in diameter, the young ones dilated to 1.5 × the breadth at the apex, not thickened, the older ones moreover somewhat thickened. Leaves exactly opposite, the petioles difficultly to be distinguished from the laminae, usually 5—7 mm long, not swollen at the base, terete in the lower portion, flattened above and dilated towards the lamina; lamina roundish elliptical, or slightly obovate, or slightly ovate, 2—4 cm long, 1—2 cm broad, usually contracted into the petiole below the rounded or cuneate base, very obtuse to rounded at the apex, thin-coriaceous, different above and below, dull on both surfaces, greenish above, brownish or yellowish below, the basal portion of the midrib and of the strongest lateral nerves visible above, nerveless for the rest. Flowers single or in pairs, rarely three together, in the leaf axils, each on a separate articulate pedicel bearing no bract at the articulation, and one bract (in one flower 2 bracts) at the tip; pedicel usually 6—8 mm long, somewhat above the middle or at two-thirds of the length strongly articulate, the lower portion terete, nearly 0.5 mm in diameter, rounded or slightly cupuliformous at the tip, sometimes somewhat longer at one side, the upper portion somewhat less thick at the base, gradually somewhat thicker the tip; bract with amplexicaulous base, ovate, subobtuse, nearly 1.5 mm long. Calyx tube campanulate-terete,

nearly 3 mm long, 1.5 mm wide, limb somewhat infundibuliformous, or even spreading, nearly 0.5 mm long, entire or nearly so. Corolla in the state of full-grown bud usually 34—35 mm long, nearly 2.5—3 mm wide above the rounded base, slightly widened in the lower half, then again narrowed, nearly terete and 2 mm wide in the upper half, slightly thickened above the insertions of the filaments and at about 5—6 mm from the tip, subobtuse, later entirely divided into 4 petals, that are nearly 1.5 mm broad in the lower half, gradually narrowed to 1.25 mm in the upper half, bearing the filament at about 12 mm from the tip, above the insertion of the filament over nearly 3 mm at each side with a membranous inflexed margin 0.5 mm broad, above that part narrow-lanceolate, nearly 1.25 mm broad, thickish towards the acute tip, usually not reflexed, or reflexed in the narrowest part, or above the insertion of the stamen. Filament 5—7 mm long; anther 2.5—3 mm long, hardly broader than the filament, distinctly divided into 4 non-septate loculi, subobtuse or subacute. Style nearly 1 mm longer than the corolla, nearly equally thick from the base to 6 mm below the stigma, distinctly 4-angular in the lower portion, terete in the upper portion; stigma nearly globose or obovate, several times thicker than the style tip, nearly 0.3 mm in diameter. Fruit (unripe) obovate or pear-shaped, the largest ones up to 6 mm long, 3.5 mm in diameter, crowned by the slightly enlarged, up to 1 mm long, slightly infundibuliformous calyx limb.

This description is made from the specimens collected by Mrs. CLEMENS, under the no. 4544. They are somewhat more robust than all specimens formerly collected, their leaves are more roundish and especially less obovate, the inflorescences and flowers are a trifle larger, the corollas 32—35 mm long. The peculiar inflexed membranous margin was not observed by me formerly. The under mentioned specimens, collected by CARR, have much more cuneate leaves and have smaller inflorescences; flowers are lacking. They agree more closely with the specimens HELFWIG 322 and KLOSS s.n. formerly described by me.

Morobe, Ogeramngang, on forest tree below village, 5700 ft alt., 7 XII 1936, CLEMENS 4544 (BD), plant pendulous, flower red, stamens yellow; Alola, forest, 6000 ft alt., 17 XII 1935, CARR 13851 (BD, L), flowers crimson; *ibidem*, 2 I 1936, CARR 14143 (BD, L), parasite, flowers rose-red.

Known, hitherto, from only one locality in S. W. New Guinea, and one locality in N. E. New Guinea.

III, 7. *Amyema friesiana* (K. SCHUMANN) DANSER — Cfr. Bull. Jard. Bot. Buitenzorg, sér. 3, XI, p. 332.

Morobe, Yunzaing, forest tree, 5000 ft alt., 29 VI 1936, CLEMENS 3455 (BD), shrub, flower with red base, yellow apex, fruit red; *ibidem*, 5900 ft alt., 27 I 1937, CLEMENS 5156 (BD), petioles and peduncles purple-maroon, buds fawn yellowish; Central Division, Mafulu, 1250 m alt., IX—XI 1933, BRASS 5242 (L), parasitic in secondary forests, lower part of perianth red, upper red; and BRASS 5275 (L), parasitic on oak forests, leaf nerves prominent on upper surface, base of perianth red, upper part yellow; Isuarava, forest on tree, 5000 ft alt., 15 II 1936, CARR 15558 (BD, L); *ibidem*, secondary forest on tree, 3500 ft alt., 26 II 1936, CARR 15778 (BD, L), parasite, flowers red tipped yellow, petal lobes yellow green.

Known from several localities in northern New Guinea, new to S. E. New Guinea.

III, 8. *Amyema gracilis* DANSER, in Bull. Jard. Bot. Buitenzorg, sér. 3, XI, 3—4 (1931) p. 334, ic. 9, z—aa.

Morobe, Yunzaing, 4493 ft alt., 16 IX 1936, CLEMENS 4194 (BD), flower all red, bud tips faint yellow.

This species was collected only once before, in western New Guinea, at nearly the same altitude. Perhaps it is only a variety of *Amyema artensis*. See also *Amyema papuana*, below.

III, 9. *Amyema pachypus* (BURKILL) DANSER — Cfr. Bull. Jard. Bot. Buitenzorg, sér. 3, XI, p. 341.

Central Division, Mt. Albert Edward, 3500 m alt., V—VII 1933, BRASS 4378 (L, double from NY), parasitic shrub on river bank tree, leaves yellow-green, inflorescence bright red, past flowering and perianths not seen.

Amyema pachypus was only known, hitherto, from Mt. Scratchley, where it was collected at an elevation of 3000—3900 m by GIULIANETTI (s.n.). The present specimen slightly differs from the type by somewhat smaller and thicker leaves, and few mm shorter peduncles, pedicels, and flowers, by which, still more than the type, it appears to be a form of high mountain summits. I think it possible, that *Amyema clavipes* (see above) may be a form of *A. pachypus* of lower elevations.

III, 10. *Amyema papuana* DANSER, nov. spec. — Fig. 1, c—d. — Omnis glabra. Ramuli teretes nodis incrassatis; internodia 1.4—4.5 cm longa, foliifera 1—3 mm diametro, iuvenilia nodis ad duplo dilatatis, vetustiora nodis incrassatis, cortice rimulis lenticellisque aspero. Folia opposita subsessilia, ovato-oblonga vel ovato-lanceolata, 3—8 cm longa,

1.5—2.5 cm lata, basi cuneata, in partem petioliformem 1—2 mm longam breviter contracta, apicem obtusiusculum versus acuta vel leviter acuminata, tenuiter vel crassiuscule coriacea, utrinque opaca, faciebus diversis, costa facie superiore nonnihil magis prominente quam inferiore (sic!), nervis ceteris fere invisibilibus. Inflorescentiae plerumque singulae in axillis foliorum, umbellae biradiatae triadum, quarum flores medii sessiles, laterales pedicellati; pedunculus teres, 5—6 mm longus, 0.75—1.25 mm diametro, apice basique nonnihil incrassatus; radii 2, divergentes (nec divaricati), 2—3 mm longi, pedunculo paulo tenuiores; pedicelli florum lateralium 1 mm longi vel paulo breviores, etiam divergentes; bractee triangulares, fere uncinatae, circiter 1.5 mm longae, paulo minus latae. Calycis tubus campanulato-obovatus, 2 mm longus, 1.25—1.5 mm latus; limbus erectus vel nonnihil inflexus, 0.25—0.5 mm longus, integer vel nonnihil irregulariter dentatus. Corolla statu alabastri adulti gracillima, stylo subaequilonga, 0.5—0.75 mm lata, partibus basali et apicali vix incrassata, obtusiuscula, post divisa in petala 5. Stylus tenuiter filiformis, 32—35 mm longus, stigmatate ellipside, circiter sesquiplo crassiore. Flos apertus et fructus ignoti.

Very closely allied to *Amyema gracilis*, and perhaps, like this, only a variety of the polymorphous *Amyema artensis*. In general appearance it comes near to the southern forms of this species, with smaller leaves and shorter flowers, but the flowers of *Amyema papuana* are still longer than those of the northern form of *A. artensis*. (Cfr. Bull. Jard. Bot. Buitenzorg, ser. 3, XIV, p. 89—91.) *A. panuana* differs from *A. gracilis* by 5-merous flowers, with glabrous calyces, and by narrower and more ovate leaves.

Central Division, east of Mt. Tafa, 2300 m alt., 27 V 1933, BRASS 4095 (L, double of NY, type), parasitic on a small bush in mossy forest, leaves thick and shining, pale beneath, flowers red, shaded to reddish yellow at tip; Alola, forest on tree, 6000 ft alt., 2 I 1936, CARR 14135 (BD, L), leaves with red margins, flowers rose-red, tipped ochre.

III, 11. *Amyema rhopalanthes* DANSER, in Brittonia, II, 2 (1936) p. 134, t. I, h.

Western Division, Oriomo River, Wuroi, 5 m alt., I—III 1934, BRASS 5782 (L, double from NY, type), parasitic on a riverland tree, uncommon, large straggling shrub, leaves yellowish, flowers red.

III, 12. *Amyema seemeniana* (K. SCHUMANN) DANSER — Cfr. Bull. Jard. Bot. Buitenzorg, sér. 3, XI, p. 345.

Morobe, Yunzaing vicinity, forest tree, 4000 ft alt., 8 VI 1936, CLEMENS 3235 (BD), shrub, large, luxuriant, flower bright pink.

Differs from the specimens from the shore near Hatzfeldhafen, formerly included by me in this species, by the calyx limbs not at all or hardly infundibuliformous, and by this peculiarity shows some approach towards the closely allied *Amyema squarrosa* (K. KRAUSE) DANSER.

III, 13. *Amyema verticillifolia* (K. KRAUSE) DANSER — Cfr. Bull. Jard. Bot. Buitenzorg, sér. 3, XI, p. 354.

Morobe, Ogeramnang, Kudose Seggele, 6000 ft alt., 11 I 1937, CLEMENS 4996 (BD), flowers beautiful, pink; Central Division, Mt. Tafa, parasitic on mossy forest tree, 2300 m alt., V—IX 1933, BRASS 4125 (L, double from NY), stem appressed to supporting tree trunk and climbing upon it for over 1 m, leaves few, flowers red on stem of old branches; Lala River, 6000 ft alt., 30 XII 1935, CARR 14100 (BD, L), climber, buds deep rose-red.

The species was already known from several localities in northern New Guinea, but is new to Papua. It is most closely allied to *Amyema scandens* (VAN TIEGHEM) DANSER (cfr. Bull. Jard. Bot. Buitenzorg, sér. 3, XIV, p. 92). Its fruit was not yet described. In the above mentioned specimens it is obovate, up to 9 mm long by 6 mm in diameter, moreover crowned by the persistent calyx limb that is erect, entire, nearly 2 mm high, 1.5 mm wide. The styles of Mrs. CLEMENS's specimen are unusually long, varying from 25 to 33 mm in length; moreover this specimen bears inflorescences on the runners.

Amyema, indeterminable for lack of flowers.

Alola, forest at 6000 ft alt., 17 XII 1935, CARR 13848 (BD), climber; *ibidem*, 31 XII 1935, CARR 14106 (BD, L), parasite, flowers rose-red in the lower half, ochre above; *ibidem*, 5 I 1936, CARR 14190 (BD, L) parasite, leaves edged crimson and suffused dull red above, inflorescence crimson, flowers rose-red; Boridi, forest, 5000 ft alt., 14 IX 1935, CARR 13150 (BD, L), young fruit yellow-brown; *ibidem*, 21 IX 1935, CARR 13298 (BD, L), fruit and stem tinted red.

IV, 1. *Distrianthes Lamii* (K. KRAUSE) DANSER — Cfr. Bull. Jard. Bot. Buitenzorg, sér. 3, XI, p. 366.

Morobe District, Sattelberg, parasite on tree, 3000 ft alt., 8 XI 1935, CLEMENS 819 (L), 819a (BD), shrub, flowers bright red; Sattelberg to Quembung, forest, 3000—3500 ft alt., 26 XI 1935, CLEMENS suppl. (BD), flowers under forest tree.

This species was only known from a much more western locality, *viz.*, the borders of the Doorman River, at 200 m alt.; the specimens from the Sattelberg differ from the type materials by somewhat more

obtuse leaves, of which the smaller ones are even roundish and none acuminate, and by the more strongly hairy flowers with the calyx densely and long-hairy, and the corolla entirely stellate-hairy outside, more densely towards the base, more sparingly towards the tip. These differences cause an approachment towards the closely allied *Distrianthes molliflora* (K. KRAUSE) DANSER, which, perhaps, represents another variety of the same species.

The rather abundant materials collected by Mrs. CLEMENS allow me to give some complementary notes on the structure of the inflorescence and flower.

Inside the two large bracts, there are 4 smaller bracteoles, probably inserted at the base of the lateral flowers of the triads; these bracteoles are equal, narrow-triangular, nearly 3.5 mm long, 0.5 mm broad at the base, with a dense and rather long sericeous indument outside, and rather acute. Calyx nearly 3 mm long, campanulate, somewhat laterally flattened by pressure, 1.5 by 2 mm wide, its limb very short, apparently longer by the long-hairy indument that covers the whole outside, the separate hairs nearly 1 mm long, simple; corolla rather densely stellate-hairy over its whole length.

V, 1. **Tetradyas perfoliata** DANSER, in Bull. Jard. Bot. Buitenzorg, sér. 3, XI, 3—4 (1931) p. 362.

Lala River, forest on tree, 5000 ft alt., 26 XII 1935, CARR 14027 (BD, L), parasite, flowers pale flesh with darker nerves.

Though on Mrs. CLEMENS's label the flower colour is indicated, there are no flowers or inflorescences at all on the poor twigs in the Berlin and Leiden Herbaria. Yet I do not hesitate to identify these specimens with the species formerly described by me from the Sogeri region, on the ground of the peculiar leaves and internodes.

VI, 1. **Sogerianthe ferruginea** DANSER, n.sp. — Fig. 1, a—b. — Gracilis, ramulis teretibus, simplicibus vel dichotomis vel etiam umbellatim ramosis, internodiis foliiferis 3—13 cm longis, 2—4 mm diametro, nodis iuventute nonnihil applanatis et tumidis, postea magis incrassatis, ad duplo crassioribus. Folia opposita; petiolus difficile a lamina distinguendus, parte alata excluso 1—3 mm, parte alata incluso 5—8 mm longus, supra basin tumidam semiteres, laminam versus planior et latior; lamina ovato-oblonga, 9—16 cm longa, 4—7 cm lata, saepe falcata, sub basi rotundata vel cuneata subabrupte in petiolum contracta, apicem subacutum versus acuminata, crassiuscule chartacea, faciebus valde diversis, utrinque opaca, nervatura pennata sed nervis lateralibus utrinque 2 vel 3 valde incurvatis subcurvinervis, costa et nervis cras-



Fig. 1. (See page 47, bottom.)

sioribus facie superiore planis vel leviter prominentibus, venis vix visibilibus; folia (ut caules) iuventute densissime tomentosa indumento ferrugineo pilis divaricatis ramosis, facie superiore (ut caules) mox glabrescentia, facie inferiore indumento tenuescente sed semper denso obscure ferrugineo. Flores numerosi circum nodos, singuli in singulis scrobiculis corticis inserti; pedicellus nonnihil obconicus, circiter 0.5—1.5 mm longus, apice 1—1.5 mm lato bracteas 2 calycis basin includentes (exteriore quarum interiorem amplectentē), rotundatas acutiusculas, 2—3 mm longas, facie exteriore ferrugineo-tomentosas, margine pilis ramosis fimbriatas ferens. Calycis tubus campanulato-infundibuliformis, circiter 2—2.5 mm longus, apice 1.25—1.5 mm latus, omnino dense ferrugineo-tomentosus; limbus erectus integer, 1.5—2.75 mm longus, ferrugineo-tomentosus ut tubus, fimbriatus ut bracteae. Corolla statu albastru adulti 28—38 mm longa, a basi ad medium ad 4 mm dilatata, apicem versus abruptius in collum attenuata, denique incrassata in clavam circiter 7 mm longam 1.5—2.5 mm crassam, acutam vel acuminatam, postea divisa usque ad maximam amplitudinem in lacinias 6 parte inferiore anguste triangulas parte superiore angustissime spathulatas, parte angustissima recurvatas, apicem acutum versus crassiusculas, tubo intus circiter 4 mm supra basin squamulis 6 breve lingulatis inflexis. Filamentum c. 4.5 mm longum; anthera c. 2.5 mm longa, acutiuscula, loculis non septatis. Stylus strictus, subfiliformis, a basi usque fere ad apicem aequicrassus, 29—39 mm longus, 6-costatus, parte apicali c. 3 mm longa paulum attenuatus, subteres; stigma subglobosum, styli parte inferiore aequicrassum. Fructus obovato-globosus, ad 5.5 mm longus, 4.5 mm diametro, calycis limbo persistentē erecto subinfundibuliformi coronatus. (Description from all the materials under mentioned, the plate being drawn from CARR's no. 13917, before the more complete materials collected by Mrs. CLEMENS were received.)

Closely allied to *Sogerianthe sessiliflora* DANSER (cfr. Bull. Jard. Bot. Buitenzorg, sér. 3, XI, p. 346), but different by several minor characters, such as the ferruginous rather copious indument.

Morobe, Ogeramngang to Malang, hill trail, on medium tree, 4500 ft alt., 17 XII 1936, CLEMENS 4646 (BD), type of the species, shrub, ample

Fig. 1, a—b: Sogerianthe ferruginea (CARR 13917), *a*: flowering twig, $\times \frac{2}{3}$; *b*: pedicel with bracts, calyx, and style, $\times 2$; *c—d: Amyema papuana*, *c*: leafy twig with inflorescence in bud (CARR 14135), $\times \frac{2}{3}$; *d*: triad with 3 calyces (BRASS 4095), $\times 2$; *e: Notothixos papuanus* (CARR 15403), $\times \frac{2}{3}$; *f: Korthalsella papuana* (CARR 15120), $\times \frac{2}{3}$.

big clump, flower red, tip yellow; Morobe, Bulung River vicinity, on forest tree, 3000 ft alt., 28 I 1937, CLEMENS 5184 (BD), fruit orange; Yodda River, forest on tree, c. 4500 ft alt., 21 XII 1935, CARR 13917 (BD, L), parasite, flowers deep pink.

VI, 2. *Sogerianthe sogerensis* (SP. MOORE) DANSER — Cfr. Bull. Jard. Bot. Buitenzorg, sér. 3, XI, p. 346; XIV, p. 95.

Koitaki, on a tree in wood, 1500 ft alt., 19 IV 1935, CARR 11940 (BD, L), fruit green suffused with red; *ibidem*, 7 VI 1935, CARR 12574 (BD, L), flowers orange; Alola, forest, on No. 13832, 5000 ft alt., 17 XII 1935, CARR 13831 (BD, L), parasite, flower pink, petal lobes with broad crimson margins; Boridi, secondary forest, on trees, 3800 ft alt., 21 X 1935, CARR 14640 (BD, L), parasite, flowers deep rose-red; Boridi, forest, on tree, 4000 ft alt., 7 IX 1935, CARR 14833 (BD, L), flowers deep rose-red, petal lobes cream with rose-red margins; Uniri River, forest, on a tree, 6500 ft alt., 18 I 1936, CARR 15192 (BD, L), parasite, flowers rose-red.

The species is, besides from S. E. New Guinea, only known from New Ireland.

VII, 1. *Dendrophthoë falcata* (LINN. FIL.) ETTINGSHAUSEN — Cfr. Bull. Jard. Bot. Buitenzorg, sér. 3, XI, p. 403; XIV, p. 96.

Kanosia, on forest tree, 50 ft alt., 14 II 1935, CARR 11359 (BD, L), parasite, flowers deep creamy yellow, petal lobes dark crimson.

Widely spread from India to the Solomon Islands and Tropical Australia, but CARR's plant is the first recorded for S. E. New Guinea.

VII, 2. *Dendrophthoë Gjellerupii* (LAUTERBACH) DANSER — Cfr. Bull. Jard. Bot. Buitenzorg, sér. 3, XI, p. 409, ic. 21, d—f.

Morobe District, Wareo, high forest, hill trail, 2500 ft alt., 7 II 1936, CLEMENS s.n. (BD), flower all red, on ground, fruit not seen, no leaf; Yunzaing, Mt. Aloki, 4000—5000 ft alt., 21 IV 1936, CLEMENS 2389 (BD), shrub, flower red; Central Division, Kubuna, parasitic in rain forest, 100 m alt., XI 1933, BRASS 5645 (L, double from NY), flowers pale yellow; Rouna, parasitic on trees in open savannah land, 1300 ft alt., 29 V 1936, CARR 12428 (BD), flowers pale reddish outside, bright red inside; Isuarava, secondary forest on tree, 4000 ft alt., 7 II 1936, CARR 15447 (BD, L), parasite, flowers red, petal lobes ochreous with green base.

BRASS's No. 5645 is the same form as that collected by the same collector formerly near Budatobara (BRASS 746, see l.c. p. 410), but the corollas are a trifle longer, *viz.* up to 20 mm. CARR's no. 15447 has corollas still a few mm longer, *viz.* 20—24 mm long; CARR's no.

12428, from Rouna, is somewhat doubtful, as there are neither corollas nor styles, but the calyces appear too small for *Dendrophthoe falcata*. Mrs. CLEMENS's collection from Wareo only consists of flowers picked up from the ground, partly with corollas and styles varying from 20 to 26 mm in length; her no. 2389, from Yunzaing, has the longest flowers ever seen by me in this species, the styles measuring up to 28 mm. Though a variation of the corolla length from 14 to 28 mm is quite normal for a *Dendrophthoe* species, it must be borne in mind that the corolla length of *Dendrophthoe falcata* varies from 30 to 50 mm, and sometimes is found even a few mm shorter, so that, in this respect, there is almost a transition series between *D. falcata* and *D. Gjellerupii*, just as is the case between *D. falcata* and *D. pentandra*, and between *D. falcata* and *D. praelonga*. Perhaps in *D. Gjellerupii* there is a relation between the length of the corolla and the altitude of the locality, which appears from the following:

GJELLERUP 143	..... style up to 14 mm long	..... 1 m alt.
BRASS 746	..... style up to 16 mm long	..... 150 m alt.
BRASS 5645	..... style up to 20 mm long	..... 100 m alt.
CARR 15447	..... style up to 24 mm long	..... 1200 m alt.
CLEMENS s.n.	..... style up to 26 mm long	..... 750 m alt.
CLEMENS 2389	..... style up to 28 mm long	.... 1200—1500 m alt.

Dendrophthoe, indeterminable for lack of flowers.

Morobe District, Quembung Mission, 2500 ft alt., forest hill, on flowering *Gordonia*, 11 XII 1935, CLEMENS 1275 (BD), great size, almost tree-like, fruit gray-green; Yunzaing, hill, on forest tree, 4000—5000 ft alt., 18 IV 1936, CLEMENS 2370 (BD) partly, shrub, flower yellow and red.

VIII, 1. **Korthalsella papuana** DANSER, n. sp. — Fig. 1, f. — Caulis simplex, erectus, 2—6 cm longus, internodiis paucis (plerumque 4), inferiore subtereti brevi, ceteris subaequilongis gradatim magis eodem sensu applanatis, superiore obovato vel subobcordato, 15—19 mm longo, 10—13 mm lato, basi acuminato, apice subtruncato. Folia ad bracteas reducta, bina connata in limbum ad axillas acutum 0.5—0.75 mm longum, inter axillas obtusum circiter 0.5 mm longum, utrinque nervis longitudinalibus 3 vel 5, quorum medianus costatus, laterales minus distincti. Inflorescentiae ternae in apice caulis, spicatae, 7—15 mm longae, forsan postea etiam in axillis inferioribus; internodia 4—6, subteretia, limbo patente circiter 1.25 mm diametro, axillis distincte decussatis; pili interflorales numerosi, limbum fere 1 mm superantes,

conferti. Flores in quoque limbo numerosi verticillati pluriseriales, conferti, ut videtur fere omnes feminei, clavati, trimeres.

Closely allied to *Korthalsella geminata* (KORTHALS) ENGLER, from which I hesitate to separate it as a species. The most important differences are in the broader and more attenuate internodes. Perhaps the unbranched stems and the ternate apical inflorescences may not be found in older and more strongly developed specimens.

Crest of Main Range, N.W. of the Gap, ridge top, 9500 ft alt., 15 I 1936, CARR 15120 (BD, L), parasite on shrubs.

The genus is new to New Guinea.

IX, 1. *Ginalloa arnottiana* KORTHALS — Cfr. Bull. Jard. Bot. Buitenzorg, sér. 3, XI, 3—4 (1931) p. 449; Philipp. Journ. Sc., 58, 1 (1935) p. 130.

Morobe, Bulung River, 2878 ft alt., 9 II 1937, CLEMENS 5339 (BD), on small tree, fruit ivory white.

The genus is new to New Guinea. The above plant appears to represent a white-fruited variety, as, hitherto, I always found the fruits of *Ginalloa* described as red on herbarium labels.

X, 1. *Notothixos cornifolius* OLIVER, in Journ. Linn. Soc., bot., 7 (1864) p. 92, 103, cum var. *angustifolia*; BENTHAM, Fl. austr., 3 (1866) p. 397; BAILEY, Synops. Queensl. Fl. (1883) p. 452, excl. var. *subaureo*; ENGLER, in ENGL. & PR., Nat. Pflanzenfam., III, 1, p. 193 (1889); VAN TIEGHEM, in Bull. Soc. Bot. Fr., 43 (1896) p. 187; ENGLER, in ENGL. & PR., Nat. Pflanzenfam., Nachtr. (1897) p. 139; BAILEY, Compr. Cat. Queensl. Pl. (1913) p. 469; BLAKELY, in Proc. Roy. Soc. N. S. Wales, 53, 2 (1928) p. 40, t. IV, 11—22, cum var. *angustifolia*; ENGLER & KRAUSE, in ENGL., Nat. Pflanzenfam., ed. 2, 16b (1935) p. 196; *Notothixos xantophyllus* VAN TIEGHEM, in Bull. Soc. Bot. Fr., 43 (1896) p. 187, nomen; ENGLER & KRAUSE, Nat. Pflanzenfam., ed. 2, 16b (1935) p. 196, nomen.

Tomentum on all very young parts thin but very dense, gradually disappearing from the twigs and the leaves before they are adult, persistent on the inflorescences, but growing less dense on the fruits, first ochraceous or light-ferruginous, soon more grey-greenish. Small shrub, the oldest internodes up to 8 cm long, 5 mm in diameter, terete, dilated at the nodes to 1.5 × as broad, the brownish-green surface rough by minute light-coloured crevices, pseudotrictotomous at nearly all the nodes in the non-flowering portion, the internodes less thick and shorter towards the extremities, the youngest ones less than 1 mm in diameter, terete, striped, up to 1.5 × as broad at the tip, 3—5 cm long, pseudo

dichotomous at nearly all the nodes below the terminal inflorescences, each branch with only two normal leaves at the apex and (probably always) two scale-like rudimentary leaves at the base and two others a few mm above the base, the latter ones narrow-triangular, acute. Normal leaves opposite; petiole difficult to be distinguished from the lamina, the non-dilated portion up to 6 mm long in the largest leaves, flattened above and beneath; lamina ovate-lanceolate, usually somewhat falcate, 5—11 cm long, 7—15 mm broad, broadest at one-third of the length, gradually attenuate and somewhat acuminate towards the base and the apex, subobtuse, rather thick-coriaceous, brittle, dull on both sides, greyish green, with usually 3 longitudinal distinct slightly prominent nerves, sometimes with 2 short longitudinal nerves more. Inflorescences terminal on the thinner internodes, 1—6 cm long, racemes of fan-like cymes, one cyme terminal and 5 or less decussate pairs of such cymes lateral; peduncles 3—9 mm long, 0.75 mm in diameter, the upper ones gradually somewhat shorter; pedicels of the cymes usually 3—4 mm long; bracts at the base of the pedicels spreading, acute-triangular, 0.5—1 mm long, those of the cymes of the same shape, a little shorter. Flowers usually 5 in each cyme; arrangement of the female and male flowers not evident, most of the flowers apparently female, soon forming fruits. Fruits ovate-oblong, up to 6 mm long, 3.5 mm in diameter, crowned by the 4 persistent tepals; seed oblong, very flat, white, 4 mm long, 2.5 mm broad, 0.5 mm thick. (Description from the under mentioned specimens.)

Closely allied to *Notothixos leiophyllus*, and entirely agreeing with it in structure of the inflorescences, but with a less copious and shorter indument, the leaves thicker and nearly equal above and below, and falcate. I have determined our plant with BLAKELY's revision of the Australian species (l.c.). The only difference with the plants, described by BLAKELY as *N. cornifolius*, is that the leaves are much narrower, and it is, therefore, possible that our plants represent the var. *angustifolia* OLIVER, published without description.

Lala River, in forest on tree, 5500 ft alt., 20 XII 1935, CARR 13904 (BD, L), leaves glaucous, flowers glaucous with the petal lobes brown inside.

The species was only known, hitherto, from the Australian Continent (Queensland, N. S. Wales, cfr. BLAKELY, l.c., p. 40), and is new to New Guinea.

X, 2. *Notothixos leiophyllus* K. SCHUMANN — Cfr. Bull. Jard. Bot.

Buitenzorg, sér. 3, XI, p. 456; Journ. Arnold Arboret., 16, p. 209; Phil. Journ. Sc., 58, p. 138.

Central Division, Laloki River, Rona, 600 m alt., 16 III 1933, BRASS 3681 (L, double from NY), parasitic on forest trees, common, indumentum golden yellow on young shoots and inflorescences, pale brown under leaves, upper sides of leaves shining, under sides darker and dull, fruit soft whitish, 5 mm in diameter; Central Division, Ononge Road, Dieni, 29 IV 1933, BRASS 3910 (L, double from NY), parasitic on a tall rain forest tree, young shoots, flowers, and fruit golden yellow; Boridi, forest on trees, 3500 ft alt., 22 X 1935, CARR 14703 (BD, L), parasite, flowers yellow.

Notothixos subaureus OLIVER was incidentally mentioned by F. v. MUELLER for S. E. New Guinea, in Proc. Linn. Soc. N. S. Wales, ser. 2, II (1887) p. 422, and, according to BLAKELY, also in Descript. Not. Pap. Pl., 1885, p. 61. The last specimens, however, represent, according to BLAKELY, *Notothixos leiophyllus*, from the Owen Stanley Range, coll. H. C. FORBES, and therefore it is quite possible that the first record, too, is erroneous.

X, 3. *Notothixos papuanus* DANSER, n. sp. — Fig. 1, e. — Indumentum tomentosum, densum in omnibus partibus iuvenilibus, e pilis verticillatim ramosis longioribus et brevioribus compositum, primum ochraceum, postea magis canum. Frutex parvus; rami vetustiores teretes, valde pseudo-trichotome ramosi, internodiis ad 4 cm longis, 5 mm diametro, nodis incrassatis ad duplo dilatatis, superficie atra et aspera, striata; ramificationes extremae tenues, pseudo-dichotomae (inflorescentiis in bifurcationibus positis), internodiis minus quam 1 mm diametro et 2 cm longis, minus dilatatis, nec incrassatis. Folia opposita; petiolus difficile a lamina distinguendus, 2—5 mm longus, basi non incrassatus, 0.5—1 mm latus, dorsiventraliter applanatus, laminam versus magis dilatatus magisque applanatus; lamina ovata, 1.75—4.5 cm longa, 1—2.8 cm lata, obtusa, sub basi cuneata in petiolum contracta, tenuiter coriacea, fragilis, facie superiore (statu sicco) atra, opaca vel nonnihil lucida, facie inferiore indumento opaca, denique subcana, nervis 3 vel 5 longitudinalibus facie superiore impressis, plerumque visibilibus sed indistinctis, facie inferiore vix visibilibus. Inflorescentiae terminales in ramulis tenuioribus, spicatae, ad 2 cm longae, e cymis 3 vel 4, rarius paucioribus, ventilabrifformibus, decussatim superpositis, compositae; pedunculus ad 5 mm longus, basi teres et minus quam 0.5 mm diametro, apicem versus vix applanatus et dilatatus, apice inter bracteas 2 oppositas patentes anguste-triangulas subcanaliculatas

acutiusculas in discum verticalem semiorbicularem floriferum dilatatus; internodia superiora aequilonga, inflorescentias partiales similes ferentia, quarum terminales tantum flore centrali praeditae. Flores uniseriales, 5—8 in quaque axilla, ab axi ad bracteam florentes, flores masculi indistincti, feminei mox fructiferi. Fructus immaturus angustus basi valde attenuatus, apice tepalis 4 persistentibus et stylo brevi stigmatibus capitato coronatus, maturus ignotus. (Description from all the materials examined, the second number of which is in no way different from the types.)

Alola, in forest on tree, 6200 ft alt., 6 XII 1935, CARR 13660 (BD, L, types), flowers olive-yellow tipped orange-ochre; Isuarava, in forest on tree, 4800 ft alt., 5 II 1936, CARR 15403 (BD, L), parasite, flowers brownish ochre.

Observation. By the structure of its inflorescence, this species does not fit into any of the sections of *Notothixos* distinguished by VAN TIEGHEM and accepted by ENGLER. I, therefore, base a new section upon it, and take the opportunity of giving the following concise survey of sections and species, based upon the structure of the inflorescence.

Notothixos OLIVER, in Journ. Linn. Soc., bot., 7, p. 92, 103 (1864); VAN TIEGHEM, in Bull. Soc. Bot. Fr., 43 (1896) p. 186; ENGLER, in ENGL. & PR., Nat. Pflanzenfam., Nachtr. (1897) p. 139; ed. 2, 16b (1935) p. 196.

Sect. 1. **Peneixos** VAN TIEGHEM, in Bull. Soc. Bot. Fr., 43 (1896) p. 187; ENGLER, in ENGL. & PR., Nat. Pflanzenfam., Nachtr. (1897) p. 139 (sphalmate *Pencixos*); ed. 2, 16b (1935) p. 196.

Inflorescence composed of one single, three- or more-flowered cyme.

N. incanus (HOOKER) OLIVER, with the cymes 3-flowered, in Australia, *N. malayanus* OLIVER, with the cymes more-flowered by the development of adventitious buds, in Penang.

Sect. 2. **Eunotothixos** VAN TIEGHEM, *ibidem*; ENGLER, *ibidem*.

Inflorescence composed of many fan-like, more-flowered cymes, terminal and decussately arranged into a raceme.

N. subaureus OLIVER, with only three cymes in each inflorescence, in Australia; *N. cornifolius* OLIVER, in Australia and New Guinea, *N. leiophyllus* K. SCHUMANN, in the Philippines, the Moluccas, New Guinea, New Britain, Solomon Islands, and Queensland, and *N. Schlechteri* K. KRAUSE, in New Guinea, all of them with five or more cymes in each inflorescence.

Sect. 3. **Ixostachys** VAN TIEGHEM, *ibidem*; ENGLER, *ibidem*.

Inflorescence a spike of 3-flowered sessile, decussately arranged cymes.

N. floccosus (THWAITES) OLIVER, in Ceylon, *N. Curranii* MERRILL and *N. sulphureus* MERRILL, both in the Philippines and Borneo, and *N. spicatus* K. KRAUSE, in Java and New Guinea.

Sect. 4. *Psygmatochys* DANSER, nov. sect.

Inflorescentia spicata, e cymis plurifloris ventilabrifformibus decussatim superpositis composita.

N. papuana DANSER, in New Guinea.

The sections *Peneixos* and *Eunotothixos* show a difference only of degree. If the inflorescences of the latter were reduced to one cyme, they would be identical with those of the former section. In *Peneixos*, we have one species with the cymes in their simplest 3-flowered form, another with the cymes more-flowered and fan-like by the development of adventitious flowers. Species with the cymes 3-flowered and arranged into a raceme, are not yet known. They would form a connection with the section *Ixostachys*, where the cymes are 3-flowered and arranged into a spike. Species with such an inflorescence, but the cymes more-flowered and fan-like by adventitious buds, are not yet known. The new section *Psygmatochys* realises another possibility. If we let the adventitious flowers out of consideration, the flowers are decussately arranged into simple spikes. Instead of the development of the lateral flowers of the triads in the axils of their lateral prophylls, we find a development of serial adventitious flowers, developing, one after the other, in the direction of the bract. If we take two opposite partial inflorescences together as one cyme, we have again realised the triads augmented with adventitious flowers. Among these augmented cymes, only the terminal one has the middle flower developed; in the lower ones this terminal flower is replaced by the axis continuing the spike. See Fig. 1, e.

XI, 1. *Viscum articulatum* BURMAN FIL. — Cfr. Bull. Jard. Bot. Buitenzorg, sér. 3, XI, p. 460; Phil. Journ. Sc., 58, p. 141.

Veyia, parasitic on trees in forest, sea level, 11 III 1935, CARR 11650 (BD, L), fruit greenish-white.

The species, spread from India to Tropical Australia, was not collected before in New Guinea.

XI, 2. *Viscum ovalifolium* DE CANDOLLE — Cfr. Bull. Jard. Bot. Buitenzorg, sér. 3, XI, p. 466; Phil. Journ. Sc., 58, p. 139, under *V. orientale*.

Central Division, Laloki River, Rona, 450 m alt., parasitic on gully

forest trees, 7 III 1933, BRASS 3553 (L, double from NY), common, compact shrub, stems and branches green, yellow about the nodes, fleshy dark leaves, nerves prominent on upper side, obscure beneath, flowers golden yellow, fruit green with yellow tubercules; Kanosia, sea level, 10 II 1935, CARR 11254 (BD, L), parasitic on no. 11237, flowers green; Koitaki, forest, 1500 ft alt., 19 IV 1935, CARR 11937 (BD, L), flowers yellow-green; *ibidem*, 30 IV 1935, CARR 12098 (BD, L), parasitic, flowers yellow-green, fruit orange.

This species, so widely spread in the Malay Archipelago, and wrongly mentioned, hitherto, as *Viscum orientale* WILLDENOW, was collected, up to the present, in the N.W. part of New Guinea only.

Indeterminable.

Boridi, forest, 4000 ft alt., 28 IX 1935, CARR 14253 (L), tree c. 20 ft tall, fruit green.

This collection is represented, in the Leiden Herbarium, by a leafy branch without any inflorescence, and a number of small inflorescence fragments and dried, unripe fruits. The leafy twig certainly represents a *Loranthacea*, probably an *Amyema*. The inflorescence fragments and fruits resemble, at first sight, those of another *Loranthacea*, especially some *Amylotheca*, but, after more close examination, appear to belong to another family.

Index of BRASS's, CARR's and CLEMENS numbers mentioned in this note.

BRASS 746 (VII, 2); 3553 (XI, 2); 3622 (I, 2, var.); 3681 (X, 2); 3910 (X, 2); 4095 (III, 10); 4125 (III, 13); 4378 (III, 9); 4564, 4564a (III, 5); 4972 (III, 4); 5242 (III, 7); 5275 (III, 7); 5645 (VII, 2); 5782 (III, 11); 5966 (I, 3); 6023 (III, 3).

CARR 11239 (II, 1); 11242 (III, 1); 11254 (XI, 2); 11359 (VII, 1); 11577 (II, 1); 11597 (I, 3); 11650 (XI, 1); 11783 (III, 1); 11937 (XI, 2); 11940 (VI, 2); 12077 (I, 2, var.); 12098 (XI, 2); 12338 (III, 2); 12428 (VII, 2); 12574 (VI, 2); 12836 (I, 2, var.); 13013, 13060 (I, 2); 13150 (III, indet.); 13298 (III, indet.); 13660 (X, 3); 13831 (VI, 2); 13848 (III, indet.); 13851 (III, 6); 13904 (X, 1); 19317 (VI, 1); 14027 (V, 1); 14100 (III, 13); 14106 (III, indet.); 14135 (III, 10); 14143 (III, 6); 14190 (III, indet.); 14253 (indet.); 14348 (I, 2); 14640 (VI, 2); 14641 (II, 1); 14703 (X, 2); 14833 (VI, 2); 15120 (VIII, 1); 15166 (I, 2); 15192 (VI, 2); 15227 (III, 4); 15330 (I, 3); 15331 (I, 3); 15403 (X, 3); 15447 (VII, 2); 15502 (I, 1); 15558 (III, 7); 15617 (I, 3); 15778 (III, 7).

CLEMENS s.n. (I, 3 var.; III, 4; IV, 1; VII, 2); 289 (I, 3, var.); 563 (I, 3, var.); 782 (I, 3, var.); 819, 819a (IV, 1); 1275 (VII, indet.); 1331 (III, 1); 2370 (III, 2, VII, indet.); 2389 (VII, 2); 2931 (I, 3); 3235 (III, 12); 3381, 3381a (III, 2); 3415 (III, 2); 3455 (III, 7); 3460 (I, 2); 3847 (I, 2); 4194 (III, 8); 4544 (III, 6); 4646 (VI, 1); 4724 (I, 3, var.); 4803 (III, 2); 4996 (III, 13); 5115 (III, 2); 5156 (III, 7); 5184 (VI, 1); 5339 (IX, 1); 5385 (I, 3, var.).

Please correct the following: **NOTE.**

ERRATA.

Blumea, Suppl. I, 1937 (J. J. SMITH Jubilee Vol.)

p. 41 — line 11, from top, instead of bolèh for bolè,
read: balèh for balè.

p. 56 — Explanation of Plate V, fig. 4, line 2,
read: *A. Hookeriana* × *R. coccinea* (right) and × *R. Storiei* (left).

[This fig. has unfortunately been put upside down].

The Editor of "Blumea".