

NOTES ON SOME ASIAN MIMOSACEOUS GENERA

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INTRODUCTION

After 1954, when I published a monograph on Asiatic, Malesian, Pacific and Australian genera of *Mimosaceae*, much material has accumulated, which is accounted for below.

Furthermore I had the opportunity to study the Indochinese specimens (in Paris), which had been worked up by GAGNEPAIN. A paper of MOHLENBROCK appeared in *Reinwardtia* 6:429 (1964), being an attempt for a revised classification. Although the Senior Editor of *Reinwardtia* at that time advised against printing MOHLENBROCK's article, we deemed it worth while to edit it, in order to elicit discussion.

DISCUSSION OF MOHLENBROCK'S PAPER

Evaluation and criticism of the merits of a classification at the generic level is difficult and as a rule fruitless, as the delimitation of genera is in a more or less degree a personal matter of opinion. We are only able to evaluate or criticize the motives put to the fore for the presented classification.

MOHLENBROCK apparently started from the level of a generic revision, which is—according to me—the wrong approach in such an intricate group.

If one is not perfectly acquainted with all the species in a family or sub-family, it has been proved that no adequate classification can be produced. This I have felt myself in revising the genera of *Lauraceae*, when I had continuously to shift and regroup genera, untill I had completely mastered the revision on the specific level. The same happened with the genus *Pithecellobium*. When I worked this genus up for Malesia, I followed BENTHAM in his conservative classification. But as soon as I started outside the area and included allied genera (*Albizia*, *Serianthes*, *Archidendron*, etc.) I became aware of the fallacies of the conservative

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classification and had to reconsider radically my former publications on *Pithecellobium*.

To prove this point I give some examples of mistakes in MOHLENBROCK's paper.

1. On page 439, a diagnosis is given of *Cylindrokelupha* Kosterm., where is stated that the flowers are rarely cauliflorous. However, they are never cauliflorous (in my monograph I said : inflorescences axillary or terminal). Furthermore the legume is never subligneous. MOHLENBROCK's contention, that the valves are not twisting upon dehiscence is completely wrong (I stated : valves somewhat contorted after dehiscence and in *C. babalina* they are strongly contorted). This has a bearing on the main characteristic on which MOHLENBROCK tried to base his system).

2. On page 439, *Zygia* P. Brown is said to be unarmed, but MOHLENBROCK includes *Painleria* Br. & Rose, which has thorns (as stated by MOHLENBROCK himself on page 434 of his article).

3. He includes *Zygia* sensu Kostermans in *Pithecellobium* sensu Mohlenbrock (which is characterized by valves contorted after dehiscence). But *Zygia jiringa* Kosterm. opens only tardily and has valves certainly not contorted; of the 5 species, enumerated by me, only one has contorted valves; of 3 species the pod is unknown.

Furthermore he includes *Morolobium* which is once-pinnate, but the legumes are not moniliform (as should be according to MOHLENBROCK).

There are many more of these examples, mistakes made, I believe, because the author did not know his species.

In his introduction (which is mainly copied from my monograph) he states (p. 429) that *Ingeae* have usually bipinnate leaves, although once-pinnate occur in a few species. This I call an under-statement as the approximately 300 species of *Inga* have once-pinnate leaves.

Apparently MOHLENBROCK did not read (or did not take account of) the philosophy, underlying the classification of BENTHAM, KUNTZE, MACBRIDE, etc. as is evident when he says : the fusing of *Affonsea* and *Archidendron* by KUNTZE has little merit (without stating why). According to me KUNTZE, v. MÜLLER, etc., were completely right and consistent when they combined practically all genera!

Why others did not do this, is clear from what WOODSON and SCHERY stated on *Enterolobium* : "following general practice" and MACBRIDE : "*Pithecellobium*, as noted by BENTHAM, not separable from *Albizia* except by the pod. Nevertheless by reason of convenience and tradition and from the fact, that *Albizia* is in any case characteristically if not entirely Old World, and *Pithecellobium* New (not true any more), the group name will probably always be maintained". Consequently, if we want a natural group, we have to fuse all genera of *Ingeae* and perhaps more. This is consistency! If, on the other hand, we want to split up and make smaller groups (which are also "natural") then let it also be done consistently. This was done by BRITTON and ROSE. As I pointed out, it are the author's of local floras which tend to be conservative (incompletely quoted by

MOHLENBROCK); whereas monographers are consistently dividing up or consistently fusing.

Now let us look, what MOHLENBROCK has chosen for building up his classification. He prefers to be half-conservative, which opens the door for a dozen more classifications, but the worst thing is, that he chose the worst possible unnatural characteristic as the base of his classification : viz. the valves of the legume becoming contorted after dehiscence! This character, which is linked with the stiffness of the valves and a matter of dryness, is given hierarchic priority over spines, presence of aril, etc. Dried banana skins tend to twist when drying up, but is this a generic character?

Consequently his *Pithecellobium* becomes a hodge-podge of well defined groups (it includes *Morobium*, of which the pod is unknown, *Zygia* sensu Kosterm. with at least one species with non-contorted valves and 3 species of which the legume is not known).

Archidendron is included, but not *Affonsea*, because of its once pinnate leaves, but *Morobium* has also once-pinnate leaves and is included.

In *Archidendron* MOHLENBROCK says (p. 433) that he discovered a species which had half the flowers with a single ovary, half the flowers with two ovaries. This is certainly not a new discovery as it is already mentioned (for two species of *Archidendron*) in my own paper (p. 3) and by DE WIT for other species.

The potentiality to have more than one ovary is more important than the twisting of valves after drying and still keeps *Archidendron* and *Affonsea* separate from the other genera. Moreover, intermediate species between genera are not uncommon in well-recognized genera.

There are many important mistakes in the definition of the genera (e. g. *Albizia* has distinctly, perfectly dehiscent pods and not dehiscence delayed or not at all as MOHLENBROCK says).

CONCLUSION : There is nothing wrong with presenting a new classification, provided that it is based on sound knowledge of the species concerned and a sound weighing of importance of characteristics. This is not the case of MOHLENBROCK's classification.

ADDITIONAL NOTES ON ASIATIC MIMOSACEAE

1. *Abarema clypearia* var. *angulata* (Bth.) Kosterm., stat. nov.

ADDITIONAL LITERATURE [Sub *Pithecellobium* ¹ *angulatum* Bth.] : FILET, Plantk. Woordenb. Ned. Ind. ed. 2 : 84 (1888); de CLESCQ, Nieuw Pl. Woordenb. Ned. Ind. : 307 (1909); CRAIG in Aberdeen Univ. Studies 57 : 79 (1912); MERRILL in Lingnan Sci. J. 5 : 88 (1927); BURKILL & HOLTTUM in Gard. Bull S.S. 3 : 40 (1923); KOSTERMANS, Addit. Notes Mimos. : 1 (1956).

BASIONYM : *Pithecellobium angulatum* Bth. in Hook. Lond. J. Bot. 3 : 208 (1844).

NEW SYNONYM : *Abarema angulata* (Bth.) KOSTERM.

1. — *Pithecellobium* nom. et orth. cons.

2. **Abarema Bauchei** (Gagn.) Kosterm.

This specimen might after all represent a variety of *Abarema lucida* (Bth.) Kosterm.

NEW LOCALITIES : S. TONKIN, Cua Bang, fl., Boh 5574 (F); Chu Nga, fr., Bon 5693 (P.).

3. **Abarema bigemina** (L.) Kosterm.

ADDITIONAL LITERATURE (sub *Mimosa bigemina* L.) : LINNAEUS, Fl. Zeyl. : 218 (1747); TRIMEN in J. of Bot. **24** : 144 (1887); KOSTERMANS, Addit. Notes Mimos. : 2 (1956); (sub *Inga bigemina* Willd.) SWEET, Hort. Britt. : 101 (1827); ed. 2 : 163 (1830); (sub *Pithecolobium bigeminum* Mart.) ALSTON in TRIMEN, Handb. Fl. Ceylon, Suppl. **6** : 100 (1931).

NEW SYNONYM : *Spiroloba bigemina* (L.) RAPHESQUE, Sylva Tell. : 119 (1838); MERRILL, Index Rafin. : 148 (1949); KOSTERMANS, Addit. Notes Mimos. : 2 (1956).

4. **Abarema borneense** (Bth.) Kostermans.

Bark smooth, mottled grey and redbrown, lenticellate. Sometimes stiltroots (in swamps); it is often a colonizing species in *Shorea albida* peat swamp forest in Brunei. Wood pale brown, moderately hard and heavy.

NEW LOCALITIES : N. SUMATRA : Bila along Bila R., Oct., fr., Lörzing 14225 (BO), first record for Sumatra. — BORNEO : Sarawak, Bako Nat. Park, Path the Telok Pandan Kechil, June, fl., S. 17289 (BO); Mattang, fl., Beccari 1715 (FI); Kuching, fr., Beccari 2584 (FI) and fl., Beccari 3491 (FI); Brunei, Badas mixed peat swamp on the edge of *Shorea albida* swamp, April, fl., Smithies et al. S. 5873 (BO, SAR); ibid., secondary peat swamp forest, June, fl., Ashton Brun. 5593 (BO) and fr., Ashton Brun. 5528 (BO); ibid., ster., S. 2838 (SAR).

5. **Abarema clypearia** (Jack) Kosterm.

ADDITIONAL LITERATURE (sub *Pithecolobium clypearia* Bth.) : LECOMTE, Bois Indochine : 65 (1926); MERRILL in Lingnan Sci. J. **5** : 88 (1927) (cum var. *acuminatum*); KOSTERMANS, Addit. Notes Mimos. : 2 (1956); WU, CHEN Y, List Spermatoph. Yunnan **1** : 242 (1959); (sub *P. prainianum* Merr.) : RIDLEY in Kew Bull. 1926 : 64; von MARM in Fedde Rep. **34** : 276 (1934); (sub *P. subacutum* Bth.) : BROWN, Minor Prod. Philipp. For. **2** : 394 (1921); USEF, Pl. Philipp. **2** : 157 (1950).

NEW SYNONYM : *Adenanthera bicolor* Moon, Cat. Pl. Ceylon : 34 (1824); ALSTON in Annals Roy. bot. Gard. Peradeniya **11** : 204 (1929).

ADDITIONAL SPECIMENS (selection) :

— *Forma subacutum* : PHILIPPINES : Los Banos, June, fl., Elmer 17735 et 18012 (F); Rizal, Jan., fl., Aher's Coll. F.B. 2444 (F); Samar, Catubig R., Febr., fl., Sublaya 76 (F); Magellanes, Sibuyan, March, fl., Elmer 12166 (F); Linao R., March, fl., Borden F.B. 2746 (F); Los Banos, Laguna, April, fl., Gates 7207 (F); Mt. Makiling, March, fl., fr., Gates & Hsia 6393 (F); Leyte, May, fr., Wenzel 27 (F) et May, ster., Wenzel 37 (F).

— *Forma prainiana* : Leyte, June, fl., Wenzel 950 (F.).

The specimen Wallich 5270 B (LE) represents *A. clypearia*, whereas Wallich 5270 A represents *A. elliptica*.

MERRILL & PERRY (in J. Arnold Arb. **23** : 394 (1942)) recognized a variety *velutinum* (Brass 3932) for a New Guinea specimen. As in the

copious material studied, all intermediate stages between almost glabrous to densely tomentellous leaflets were found, this variety is not warranted.

6. *Abarema contoria* (Mart.) Kosterm.

ADDITIONAL LITERATURE (sub *Pithecolobium contortum* Martius) : WILLIAMS in Bull. Herb. Boissier, Sér. 2, 5 : 17 (38) (1905); MERRILL in Papers Michigan Ac. Sci. 20 : 98 (1934).

NEW SYNONYM: *Inga dulcis* WALLICH, Cat. 5283 A(G). Wallich 5283 B(G) represents *Pithecolobium dulce*.

7. *Abarema elliptica* (Bl.) Kosterm.

ADDITIONAL LOCALITIES : SUMATRA : Simelungun, mountain region of Si-anak-anak, alt. 200 m, March, fr., Lörzing 17032 (BO); Asahan, Pargambiran, Oct., fr., Rahmad Si Boen 5796 (BO, K); Huta Begasan, fr., Rahmad Si Toroes 1027 (GH) et fr., 6690 (GH); near Parbarinin, Rahmad Si Toroes 326 (GH); Habiran, Padang Sidempuan, July, fl., Rahmad Si Toroes 4889 (GH); Si Hare-hare Djoe, Padang Sidempuan, July, fl., Rahmad Si Toroes 5009 (GH); Liman, Aug., fl., Rahmad Si Toroes 5204 (GH); Lumban Ria, Asahan, fl., Rahmad Si Toroes 1659 (GH); sine locality, Forbes 2935 (GH); Malay Pen., sine loc., Scortechini 1790 (GH) — S.W. JAVA: foot of Mt. Hondje, limestone, alt. 50 m, Dec., fr., Kostermans 19318 (A, BO, C, CANB, G, K, L, P, US); Bogor Distr., Haur Bentes, road to Pasirnadang, alt. 400 m fr., Lanjouw 178 (BO, K, L). — BORNEO: Sarawak, upper Rejang R., Kapit, fl., Clemens 21300 (GH); Ulu Moyeng, Kakus, river bank, frequent, Oct., fr., Ashton S. 19285 (BO); Kuching, fl., Beccari 2169 (FI); Brunei, Kedayan, Lumut R., old secondary forest, Febr., fl., Ashton Brun. 5145 (BO, SAR); Sabah, Segaliud, Elopura, Sandakan For. Distr., alt. 30 m, Dec., buds, Quadra A 1140 (BO); *ibid.*, Aug., fr., Agams B.N.B.F.D. 521 (GH); *ibid.*, April, fr., Villamil B.N.B.F.D. 343 (GH). — culta in Hort. Calcuttensis, buds, Wallich 5267 C (LE), identified as *Inga lucida*.

8. *Abarema cyclosperma* (DC) Kosterm., comb. nov.

BASIONYM: *Acacia cyclosperma* D. C., Prodr. 2 : 456 (1825).

SYNONYMS: *Albizia fulgens* BENTHAM in Hook., Lond. J. Bot. 3 : 85 (1844).

Albizia Charpentieri FOURNIER in Bull. Soc. Bot. France 12 : 400 (1865) (typus in G., identified as *Acacia fulgens* Labill.).

Albizia Fournieri VIEILLARD, etc.

ADDITIONAL REFERENCES (sub *Albizia Fournieri* Vieill.) : BAKER in J. Linn. Soc. 45 : 397 (1921); (sub *Pithecolobium Fournieri* Bth.) : SARASIN & ROUX, Nova Caledonia 1, 2: 151 (1920); (sub *P. crispum* F.) : SARASIN & ROUX, l. c.; (sub *Albizia lanceolata* F.) : SARASIN & ROUX, l. c.

9. *Abarema globosa* (Bl.) Kosterm.

NEW LOCALITY: N. SUMATRA: Sibolangit Garden near Medan, Dec., fl., fr., Lörzing 12688 (BO).

10. *Abarema glomeriflora* (Kurz) Kosterm.

ADDITIONAL REFERENCE: CRAIB in Aberdeen Univ. Stud. 57 : 79 (1912).

Pod semi-circular, flat, up to 12 cm long and 1.5 cm wide, sparingly, minutely pilose, slightly lobed at the dorsal suture, inside orange; valves thin, slightly twisted after dehiscence.

NEW LOCALITIES : SIAM: Doi Sutep, alt. 1100 m, March, fl., Smitinand 4795 (BK); *ibid.*, open grassy forest, alt. 1700 m, ster., Sørensen et al. 2534 and 3222 (C); *ibid.*, alt. 1390 m, March, fl., Sørensen 7096 (C); *ibid.*, alt. 1500 m, April, fl., Sørensen 2532 (C); *ibid.*, alt. 1500 m, Oct., fr., Sørensen 5524 (C); Doi Angka, Doi Pa Mawn Spur, March, fl., Garrett 655 (BK); Doi Inthanond, Pha Mawn, April, fl., Bunsri Chaem Chusri 3958 (BK); *ibid.*, Huay Pha Kamphaeng, April, fl., Khid Suvarnasudhi 480 (BK).

11. **Abarema grandiflora** (Bth.) Kosterm.

ADDITIONAL LITERATURE (sub *Pithecolobium grandiflorum* Bth.) : VALETON in Bull. Dept. Agr. Indes néerl. **10** : 16 (1907); FRANCIS, Austral Rainforest Trees: 161 (1951).

ADDITIONAL SPECIMEN : NEW GUINEA, W. Division, upper Wassi Kusa R., mangrove transition zone, Jan., fr., Brass 8619 (GH).

12. **Abarema Hendersonii** (F. v. M.) Kosterm.

ADDITIONAL LITERATURE (sub *Pithecolobium Hendersonii* F. v. M.) : BAKER, Cabinet Timb. Austral.: 92, t. 27 (1913); (sub *Albizzia Hendersonii* F. v. M.): FRANCIS, Austral. Rainfor. Trees: 161 (1951).

13. **Abarema Kunstleri** (Prain) Kosterm.

NEW LOCALITIES : BORNEO: Sarawak, N.E. Lambir Hills, Nov., fr., Au & Ashton S. 16442 (BO, K, KEP, O, F, SAR, SING); Bintulu, river bank below tidal limits, S. Labang, April, fr., Ashton S. 18124 (A, BO, K, KEP, L, MEL, SAN, SING); locality not indicated, Creagh s.n., fr. (K); Beccari 3413, fr. (FI) et fl., Beccari 3746 (FI); Brunel, Belait R., K. Topi to K. Penipu, river bank, July, fr., Ashton [Brun. 729 (BO)]; Ulu Supon, Tutong, hanging over river, Jan., young fr., Ashton Brun. 864 (SAR).

14. **Abarema laxiflora** (DC) Kosterm.

ADDITIONAL REFERENCES (sub *Pithecolobium palauense* Kuhl.) : HOSOKAWA in Trans. Nat. Hist. Soc. Formosa **24** : 414 (1934); KANEHIRA in J. Dept. Agr. Kyushyu Univ. **4** : 337 (1935).

ADDITIONAL LOCALITIES: W. IRIAN: 10 miles S. of Manokwari, Geelvink Bay, Nov., fl., Womersley N.G.F. 11818 (BO, LAE). — TIMOR: sine coll., *Inga monilifera* DC., iso-typus (C). — PALAU: Isl. Olophacal, May, ster., rare, Takamatsu 1485 (BISH).

15. **Abarema lovellae** (F. M. B.) Kosterm.

ADDITIONAL REFERENCES (sub *Pithecolobium lovellae* F. M. BAILEY) : WHITE in Queensl. Naturalist **1** : 205 (1911); FRANCIS, Austral. rainfor. Trees: 161 (1951).

16. **Abarema lucida** (Bth.) Kosterm.

ADDITIONAL REFERENCES (sub *Pithecolobium lucidum* Bth.): MERRILL in Lingnan Sci. J. **5** : 88 (1927); GROFF in Lingnan Agr. Bull. **2** : 55 (1930); SUZUKI in Ann. Report bot. Garden Taihoku Imp. Univ. **1** : 149 (1931); Y. TANG in Bull. Fan Mem. Inst. **3** : 299, t. 8, f. 30 (1932); TANG YAO, Tang Kwo Mu Chai Cho (Timbers China), revised by HU SIAN SIAU : 314, t. 24, f. 254. (1936) (Chinese); WALKER, Important Trees Ryukyu Isl.: 132 (1954); KOSTERMANS, Addit. Notes Mimosa.: 3 (1956); WU CHEN Y., List Spermatoph. Yunnan **1** : 243. 1959 (Chinese).

ADDITIONAL LOCALITIES: CHINE: Kwangsi, Chu Feng Shan, fl., Ching 5770 (GH); Bakoshan, Sept., fr., Ching 7661 (GH); Fukien, Hinghwa Distr., Febr., fl., Chung 976

(GH); Hok-Chieng, June, fl., Tan Siu Ging 15462 (GH); Kushan, Aug., fr., Chung 7630 (GH); *ibid.*, April fr., Tan Siu Ging 13592 (GH); *ibid.*, fl., Dunn 2566 (GH, HK); *ibid.*, Nov., fr., Chung 4864 et 5883 (F); Kwangtung, White Cloud Mts., April, fr., Levine 2067 (HK) et 3018 (GH); Lok Chong, fr., Tso 20402 (FU) et June, fl., Tso 20925 (GH); Swatow Distr., near Chao Chau Fa, April, fl., Dunn 5779 (HK); Kwangtung Shan, San-on Distr., April, fl., Tsui 265 (F); Amoy Isl., June, fl., Chung 1617 (GH); *ibid.*, Nanputo, March, fr., Chung 4785 (GH) et Jan., fr., Chung 5883 (GH) et Sept., fr., Chung 4864 (GH); Chekiang, fl., R.C. Ching 1906 (GH); Szechuan, Loshan Hsien, Kiating, fr., Fang 2288 (GH); Omei Shan, fl., Y.S. Liu s.n. (GH); Yunnan, fl., Tsai 55199 (GH); Kwangtung, fr., Wilson 3399 (GH, HK); Yang Tse R. above Lu Chau, fl., Wilson 3405 (HK); Kowloon (Hongkong), May, fl., Birdwood s.n. (HK); Hongkong, fl., fr., Wright 154 (GH) et fl., Wilford s.n. (GH); *ibid.*, Stubbs Rd., May, fl., Tang 2479 (HK); Hainan, Fan Ya, fr., Chun & Tso 44086 (F); *ibid.*, April, fl., McClure 9299 (GH); fl., How 71627 (F); Poting, April, fl., How 71813 (GH); Sept., fr., Wang 34138 (GH); Lin Pa Shan, April, fr., Tsang Wai Tak 16800 (GH); Yai Chow, Febr., fr., Chun & How 70129 (GH); Ng. Chi Leng, fl., Chu & Tso 44236 (GH); Sha Po Shan, Aug., fr., Tsang Wai Tak 16110 (GH); Chin Shan, May, fl., Fung 20124 (GH, TI); *ibid.*, Fan Maan Tsu'en, May, fl., McClure 20088 (GH, TI); P'ai Poon Tsu'en, April, fl., Fung 20076 (GH); Tai Po Kau, May, fl., Lau 89 (HK); fl., McClure CCC 9299 (HK); May, fl., Katsumata s.n. (HK). — VIETNAM: Lang Hay, Prov. Quang Tri, April, fl., Poilane 1283 (P), identified as *Albizia lucida* var. *pilosula* Gagn.; fr., Bon 1828 (P). — LAOS: N. E. of Mt. Ngai near Luang Prabang, April, fl., Poilane 20687 (P). — FORMOSA (Taiwan), Taipeh, fr., Sasaki 514 and Hatusima s.n. (FU); Shirin, May, fl., Shimada 13586 (F, GH); Horishi, March, fr., Wilson 2924 (GH); Bankinsing, fr., Henry 1567 et fl., Henry 433 (GH); Mt. Daitom, fr., Tanaka 1980 (GH). — Locality not indicated, fl., Roxburgh s.n. (P), isotype of *Mimosa lucida* Roxb.

Erythrophloeum fordii in KANEHIRA, Formos. Trees: 579 (1917), represents *Abarema lucida*. This mistake was corrected in the second edition of Form. Trees : 305—306, f. 261 (1936).

17. *Abarema monadelpha* (Roxb.) Kosterm.

ADDITIONAL LITERATURE (sub *Pithecolobium bigeminum* Bth.) : BIRDWOOD in Gazetteer. Bombay Pres. 25 (Bot.) : 71 (1886); TALBOT, List : 87 (1894); Ber. Deutsche Chem.-Ges. 1890 : 3541; COOKE, Fl. Bombay 1 : 455 (1903); reprint 1 : 485 (1958); BOURDILLON, For. Trees Travancore : 162 (1908); Chem. Zentrbl. (I) : 1440 1906; SAWYER et DAN-NYUN, Class. List Pl. Burma : 16 (1927); CHOPRA et AL., Gloss. Ind. Med. Pl. : 195 (1956); MATTI in Bull. bot. Survey India 5 : 91 (1963).

Inga bigemina (non WALL.) KAMPHÖVENER (from the Calcutta bot. Gard.) represents *Albizia lucida* (C.) This is the plant enumerated by VOIGT under that name.

Inga wightiana GRAHAM in herb. WIGHT (Wallich 5281) represents *A. monadelpha* (LE).

18. *Abarema motleyana* (Bth.) Kosterm.

ADDITIONAL LITERATURE (sub *Pithecolobium motleyanum* Bth.) : MERRILL in Philipp. J. Sci. 29 : 372 (1929).

ADDITIONAL LOCALITIES : CENTRAL SUMATRA : Tjaban For. Res. near Muara, Enim, Palembang Distr., ster., Kostermans S. 105 et S. 106 (BO) and S. 35 (K, L), first record for Sumatra.

19. **Abarema multiflora** (Merr.) Kosterm.

Pod slightly curved, somewhat flattened, 12-13 cm long, 3-4 cm wide, 1.5-3 cm thick, slightly wavy along the dorsal suture, smooth, glabrous, slightly thickened over the seeds; dehiscent along dorsal suture; seeds elliptical, thick, flattened, 2.5 cm long, 1.5 cm in diam.

NEW LOCALITIES : PHILIPPINES : Luzon, Tayabas Prov., Umiray, fr., Ramos et Edano 28995 (K); Lubuagan, Kalinga subprov., May, fr., Celestino P. N.H.7870 (GH).

20. **Abarema novo-guineense** (M. & P.) Kosterm.

ADDITIONAL LOCALITY : PAPUA : Lower Fly R., opposite Starlevant Isl., Oct., fl., Brass 8176 (GH).

21. **Abarema opposita** (Miq.) Kosterm.

NEW LOCALITY : Biliton, fl., Riedel 1876 (TI).

22. **Abarema pauciflora** (Bth.) Kosterm.

ADDITIONAL LOCALITIES: Leyte, March, fl., Wenzel 70 (F); *ibid.*, Aug., fr., Wenzel 1527 (F); Samar, Catubay R., ster., Ramos B. Sci. 24305 (F).

23. **Abarema quocence** (Pierre) Kosterm.

NEW LOCALITIES : N. SIAM : Lampoon, Nu Tip, April, buds, Luang Vanpruk 98 (BK). — E. SIAM : Chantaboon, fl., Vesterdal Y H (K). — S.E. SIAM : Trat, Khao Saming, Dong Its, Oct., buds, Des Bunpheng 183 (BK); *ibid.*, Nov., fl., Bunpheng 204 (BK, BO); Wangka, Kanburi alt. 700 m, Febr., buds, Kerr 10428 (K), isotype of *Pithecolobium conspicuum* CHAIR.

24. **Abarema sapindoides** (A. C.) Kosterm.

ADDITIONAL LITERATURE (sub *Pithecolobium pruinatum* BTH.): JOLLY in Forestry Bull. 1, Dept. Public Lands Queensl.: 13, t. 5, f. 37 (1917); FRANCIS, Austral. rainfor. Trees: 161 (1951); (sub *P. junghuhnianum* BTH.): VON MALM in Fedde Rep. 34 : 276 (1934); BAILEY, Hort. second.: 571 (1941).

25. **Abarema scutifera** (Blanco) Kosterm.

ADDITIONAL REFERENCES (sub *Pithecolobium scutiferum* BLANCO): MERRILL in Philipp. J. Sci. 3 : 228 (1908); KANEHIRA, Identif. Philipp. Woods by anat. Char. 27 (1924).

ADDITIONAL LOCALITIES: Maquiling, March, fr., Natividad F.B. 7142 (F); *ibid.*, For. School F. B. 20119 (F).

26. **Abarema subcoriacea** (Thw.) Kosterm.

ADDITIONAL LITERATURE (sub *Pithecolobium coriaceum* THW.) : BOURDILLON, For. Trees Travancore: 162 (1908); ALSTON in TRIMEN, Handb. Fl. Ceylon, Suppl. 6: 100 (1931); WORTHINGTON, Ceylon Trees, t. 220 (1959).

ADDITIONAL SPECIMEN: CEYLON: Fort Macdonald, sine coll. sine num. Jan., fl. (GH).

27. *Abarema tetraphylla* (Gagn.) Kosterm.

A specimen (Harmand 724) in the Paris Herbarium looks very similar, but has 2 pairs of folioles on each rachis. However, this might represent the normal number of folioles and the 2-foliated type specimen might have reduced leaves. The specimen Harmand 724 was identified by GAGNEPAIN as *Albizia lucida* Bth., which is completely wrong.

28. *Abarema trichophylla* Kosterm.

ADDITIONAL SPECIMEN: SUMATRA: Aek Munte (Aer Moette), Asahan, N.E. of Tomuan Dolok and W. of Salabat, 500 m, July, fl., Rahmat Si Boeca 9279 (GH).

29. *Abarema triplinervia* Kosterm.

NEW LOCALITY: N. BORNEO: Sabah, Bettotan, Sandakan, alt. 50 m, April, fl., Puasa 4640 (BO, SAN).

30. *Abarema utile* (Chun & How) Kosterm., comb. nov.

— *Pithecellobium utile* CHUN & HOW (basonym) in Acta Phytotax. Sinica 7: 17, t. 5 (2) (1958).

The species is characterized by its elongate, raised slit-like glands. The Lois use the roots as medicine by steeping them in water.

New locality: HAINAN: fr., McClure C.C.C. 8340 (MO).

31. *Cathormion umbellatum* (Vahl) Kosterm. and *C. moniliforme* (DC) Merr.

In my monograph (1954) I have combined these two species. After having studied more material, I am now convinced, that the plant on which VAHL based his *Mimosa umbellata* (from Ceylon) is different from the one on which DE CANDOLLE based his *M. moniliforme* (from Timor).

The Ceylonese *C. umbellatum* has narrow leaflets, up to $1,5 \times 0,5$ cm and more deeply incised pods.

C. umbellata is also represented in SIAM: Nakawn Sawan, Pak Nampho, alt. 15-50 m, July, fl., van Pruk 1014 = R. For. Dept. 13 213 (BK); Rajburi, in swamp, 10 m, Dec., fr., Winit 502 (BK).

NEW SYNONYM: *Pithecellobium moniliforme* (DC) BENTHAM ex S.F. BLAKE in Austral. J. Bot. 2, 1: 115 (1954).

32. *Cylindrokelupha Balansae* (Oliver) Kosterm.

NEW SYNONYMS: *Ortholobium annamense* GAGNEPAIN in Bull. Soc. Bot. France 99: 37 (1952). — *Cylindrokelupha annamense* (GAGN.) KOSTERMANS in Reinwardtia 5: 247 (1960); Poilane 32620 (P), holotypus; Eberhardt 5029 (P), paratypus.

The specimen Eberhardt 5029 (which bears GAGNEPAIN's identification: *Pithecellobium lucidum* Bth.) has large folioles, up to 5×12 cm.

which does not fit with GAGNEPAIN's description (up to 3.5×10 cm); the specimen Poilane 32 620 has very small leaflets (2×5 cm). I have not seen the specimens: Poilane 24 418 and 4395.

The name *Cylindrokelupha* stands, as the Rules implicitly say, that only in a *monotypical* genus, it is permissible to have a latin diagnosis for the species only. This is not the case with GAGNEPAIN's *Ortholobium*, which is published with a French diagnosis, whereas the numerous species have latin diagnosis. One of the enumerated species was validly published before GAGNEPAIN's *Ortholobium* but this does not change the picture. Among the enumerated species there are some which do not belong in *Ortholobium* or only partly.

NEW LOCALITIES: VIETNAM: PROV. Qui Nhou, alt. 1770 m, fr., Poilane 18089 (P). The following specimens were all identified by Gagnepain as *Pithecellobium lucidum* Bth. : ANNAM, N. part, Prov. of Kontum near Moi village Tu-Tuh, alt. 1 500 m, common, March, fl., fr., Poilane 32090 (P); Col d'Ailao, Prov. of Quang Tri, Jan., fl., Poilane P. 4 (P); Tamdao, Prov. of Vin Yen, fl., Eberhardt 4944, 5002, 5022, 5029, 5032 (P); Nui Dai Ding near Dak Gley, Prov. of Kontum, Jan., buds, Poilane 32803 (P); Prov. Haut Donai, massif of Bi-Doup, alt. 2 000 m, ster., Poilane s.n. (P); *ibid.*, Massif of Braiau near Djiring, Jan., fl., Poilane 23912 (P), common; *ibid.*, between Dankia and Danglé, alt. 1200-1 500 m, Jan., fl., Poilane 23447 (P); Hui Back Ma, near Hué, alt. 1 000 m, April, fl., Poilane 29801 and 29865 (P); Ba Na near Tourane, alt. 1 400 m, Febr., buds, Poilane 28998 (P); Tuyen Quang, April, fl., Chevalier 37413 (P).

33. *Cylindrokelupha Robinsonii* (Gagn.) Kosterm., comb. nov.

BASIONYM: *Pithecellobium Robinsonii* GAGNEPAIN in LECONTE et FINET, *Notulae Syst.* Paris **2**: 281 (1912); in LECONTE, *Fl. gén. Indoch.* **2**: 103 (1913). — *Paralibertia Robinsonii* (GAGN.) KOSTERM. in Bull. Organ. Scient. Research Indonesia **20**: 23 (1954). — *Abarema Robinsonii* (GAGN.) KOSTERM., *Addit. Notes Mimosaceae*. The genera *Mammea* L. and *Ochrocarpus* THOU., Forest Service Indonesia, Bureau of Planning: **8** (1956). — C.B. Robinson 1454 (P).

— *Ortholobium Chevalieri* GAGNEPAIN in Bull. Soc. Bot. France **99**: 38 (1952). — *Cylindrokelupha Chevalieri* (GAGN.) KOSTERM. in Reinwardtia **5**: 248 (1960); Chevalier 3863, 38682 (P); Poilane 7845 (P).

— *Pithecellobium laoticum* GAGNEPAIN in Bull. Soc. Bot. France **99**: 48 (1952); Dussaud 86 (P).

— *Ortholobium platyphyllum* GAGNEPAIN in Bull. Soc. Bot. France **99**: 37 (1952). — *Cylindrokelupha platyphylla* (GAGN.) KOSTERMANS in Reinwardtia **5**: 247 (1960); Poilane 11161 (P).

— *Ortholobium umbellatum* GAGNEPAIN in Bull. Soc. Bot. France **99**: 37 (1952), p.p. quoad cit. specim. Poilane 6338 (P).

In the extensive collections of Paris, mature pods are present, which place this species definitely in *Cylindrokelupha*. The few, ascending lateral nerves and the domelike glands are characteristic. In some specimens the glands are lacking. The ripe almost cylindrical pod is up to 12 cm long and 4 cm wide, often protruding into a broad tip, it contains 5 large, disc-like about 1 cm high seeds, which are truncate and flat, where they touch each other; the valves are leathery and tend to twist slightly after dehiscence.

NEW LOCALITIES: BURMA: S. E. Shan States, Keng Fung Territ., ridge between Muang Len and Meh Kong R. Basin, Jan., fl., Rock 1998 (GH). — VIETNAM: Prov. of Phu-Tho, For. Res. Chan-Mong, April, fl., Fleury 32123 and 32133 (P); these two num-

bers represent the same specimen (an orthographic mistake), but GAGNEPAIN identified one as *Albizzia lucida* Bth. and the other one as *Pithecellobium lucidum* Bth.!; Sai Wong Mo Shan (Sai Vong Mo Leng), Lung Wan village, Dam-Ha, ster., W. T. Tsang 29814 (A, BO) et June, fr., Tsang 29260 (A); near Chuk-phai, Ha-Goi, fl., Tsang 29040 (K); Tonkin, Muong Thon road, Hanoi-Hoa-Binh, May, fl., Pételeot 2175 (GH); Mt. Bavi, May, fl., Pételeot 2173 (GH); between Dong Mo and Vinh Linh, Prov. Langson Apr., fl., Pételeot 2180 (GH); Tam Dao, Prov. Vinh-Yen, Eberhardt 3682 (P), identified by GAGNEPAIN as *Albizzia lucida* Bth.; Phong Y, Prov. Choanh Hoa, Km. 85 between Ha lau and Hai Aut, Aug., mature fr., Poilane 1673 (P), identified as *Albizzia lucida* by GAGNEPAIN!; Ga-Na, Prov. Phanrang, March, fl., Poilane 5765 (P), holotype of *Ortholobium umbellatum* Gagn.; Lang Grayg, Prov. Hoa Binh, fl., Eberhardt 4055 (P) and near Cho-Ho, fl., Eberhardt 4080 (P), both identified as *Pithecellobium lucidum* Bth. by GAGNEPAIN; Massif of Dong eo Pat, Prov. of Quang Tri, July, young fr., Poilane 11161 (P), holotype of *Ortholobium platyphyllum* Gagn.; Col des nuages, near Tourane, Sept., fr., Poilane 7845 (P), holotype of *Ortholobium umbellatum* Gagn.; Laos, Pac Lep on Mekong R., between Pac-Lay and Luang Prabang, Febr., fl., Dussaud 86 (P), holotype of *Pithecellobium laoticum* Gagn.

34. *Cylindrokelupha Poilanei* Kosterm.

This might represent a small-leaved specimen of *Cylindrokelupha Robinsonii* Kosterm.

34. *Parenterolobium rosulatum* Kosterm.

NEW LOCALITIES : BORNEO; Brunei, Ulu Ropan-Belalong watershed, 800 m alt., mor soil on clay ridge, Febr., fr., Ashton Brun. 5278 (SAR); Andulau For. Res., ster. Ashton Brun. 5500 (BO).

The Iban name : Engrutak is onomatopoeic for the rattle of the loose seeds in the dry pod.

36. *Serialbizzia attopeuense* (Pierre) Kosterm.

As I pointed out in a former paper in 1956, *Pithecellobium corymbosum* Gagn. is a mixture of 4 different species, belonging to 2 genera: Poilane 7918 = *Abarema Bauchei* Kosterm.; Poilane 4026 and 22176 represent *S. attopeuense*; Poilane 5765 = *Ortholobium umbellatum* Gagn., the same number is cited by GAGNEPAIN also under *Pithecellobium umbellatum* Gagn.; Poilane 10356 = *Cylindrokelupha Poilanei* Kosterm. The specimens Poilane 21946 and 5816 I have not seen.

ADDITIONAL REFERENCE (under *Albizzia laui* Merr.) : CHUN & HOW in Acta phytotax. Sinica 7: 17 (1958).

NEW LOCALITIES : LAOS : Km. 20 Route Colon. near Savannakhet, Febr., fl., Poilane 12058 (BO, P). — VIETNAM : Prov. Haut Donai, N. of Dnan and Kanam, ster., Poilane 30570 (BO, P), identified as *Pithecellobium lobatum* by GAGNEPAIN — HAINAN : Yaichow, fr., How 70305 (GH, K); Oct., fr., Wang 34572 (GH, K); Febr., fl., How 70239 (BO, HK); fl., How & Chan 70239 (GH); Yeung Ling Shan, Ngai Distr., June, fr., Lau 40 (GH, TI, UC), type of *Albizzia laui* Merr.

37. *Serialbizzia splendens* (Miq.) Kosterm.

ADDITIONAL REFERENCE (sub *Pithecellobium confertum* Bth.) : HOWARD, Studies Identif. Timbers : 54, f. 532 (1942); Timbers : 292 (1950).

38. **Serialbizzia salomonensis** (C. T. White) Kosterm., comb nov.

BASIONYM : *Albizzia salomonensis* C. T. WHITE in J. Arnold Arb. **31** : 89 (1950)

SALOMON ISL. : Guadalcanal, Matepona R., dominant in riverine forests, June, Walker B. S. I. P. 11 (GH); Aug., fl., B.S.I.P. 83 (GH).

The thick, rather woody, non dehiscent fruit places this species in *Serialbizzia*.

39. **Paralbizzia turgida** (Merr.) Kosterm.

ADDITIONAL LITERATURE : *Albizzia lucida* (non BTH.) MERRILL in Lingnan Sci. J. **7** : 309 (1929). — *Albizzia turgida* (MERR.) MERR. ex CHUN, H. H. HU & W. Y. CHUN, Icon. Pl. Sinic., **4** : 15, t. 165 (1935); WUCHEN-Y, List Spermatoph. Yunnan **1** : 242 (1959).

ADDITIONAL SPECIMENS : CHINE : Kwangtung Prov., April, fl., Levine 6317 (GH); Ting Wu Mts., April, buds, Levine 1976 (GH, HK); *ibid.*, Nov., fr., Levine 86 (GH, MO); Kwangsi, fl., Wang 39205 (GH).

40. **Zygia jiringa** (Jack) Kosterm.

ADDITIONAL LITERATURE (sub *Inga jiringa* JACK) : SWEET, Hort. Britt., ed. 2 : 163 (1830); (sub *Phithecolobium lobatum* BTH.) : BRANDIS, For. Fl. : 575 (1876); MAIN-GAY in Kew Bull. 1890 : 122; Kew Bull. 1926 : 64; STURTEVANT'S Notes edible Pl. (State New York Dept. Agr., 27th Ann. Rep.) **2,2** : 445 (1919); den Berger in Meded. Proefsta. Thee **97** : 39 (1926); WEHMER, Pfl. Stoffe, Erg. Bd. : 164 (1935); RODGER, Handb. For. Prod. Burma : 48 (1936); (sub *Inga bigemina* (non WILLD.) BL : PICKERING, Chron. Hist. Pl. : 331 (1879); (sub *Pithecolobium bigeminum* sensu BTH.) : STURTEVANT'S Notes, l. c. : 444.

41. **Abarema yunnanense** Kosterm., spec. nov.

Arbuscula in omnibus partibus glabra, foliis bipinnatis glandulis parvis retundatis, foliolis oppositis, chartaceis, ellipticis acuminatis, basi acutis; inflorescentiis axillaribus umbellatis calycibus dentatis tubo corollari longo, ovario stipitato glabro.

Shrub, 3 m. Branchlets grey, smooth. Leaves bipinnate, glabrous; petiole 2-3 cm long, glandless, rachillae two, up to 5 cm long with a small, circular, raised gland between the basis of the rachillae and a similar gland between the petiolules of the distal folioles. Folioles 2 pairs on each rachilla, opposite, chartaceous, glabrous, elliptical to lanceolate-elliptical, the distal ones up to 4.5 × 11 cm, base cuneate, apex acuminate, rather dull on both surfaces, in sicco black above, midrib prominulous on upper, prominent on lower surface, lateral nerves ca 4 pairs, slender, arcuate near the margin, reticulation slender and rather inconspicuous on the lower surface; petiolules ca 2 mm long.

Inflorescences axillary near the apex of the branches, 5-17 cm long, slender, glabrous, bearing the sparsely placed, slender-peduncled (3-4 cm long) umbels. Flowers sessile, glabrous; calyx campanulate, 2.5-3 mm long with small teeth; corolla tube 5-6 mm long with elongate, 3 mm long lobes; ovary glabrous, stipitate.

Typus: Tsai 55250 (L).

Related to *A. bigemina* (L.) Kostermans.

CHINA : Yunnan, Ping. Pien Hsien, alt. 1300 m, May, fl., Tsai 55372 (BO); *ibid.*, alt. 1350 m, fl., Tsai 55340 (A, BO, K); *ibid.*, alt. 1200 m, May, fl., Tsai 55250 (L); Mengtze, S. E., alt. 1600 m, Henry 9373 B (HK).



Pl. 1. — *Abarema dalatensis* Kosterm. : Chevalier 30019 (P).

42. *Abarema dalatensis* Kosterm., spec. nov. (Pl. 1)

Arbor in omnibus partibus glabra, foliis bipinnatis glandulis globosis parvis, foliolis rigide chartaceis, oppositis, sublanccolatis petiolulatis, inflorescentiis axillaribus floribus umbellatis sessilibus, umbellulis longe graciliqque pedunculatis.

Tree, glabrous in all its parts; branchlets pale brown, lenticellate. Leaves bipinnate, petioles 4-4.5 cm long with a sub-globose protruding gland somewhat below the insertion of the two rachillae; rachillae two, 7-12 cm long, bearing a small, round gland between the petiolules of the

distal folioles. Folioles opposite, 3 pairs on each rachilla, stiffly chartaceous, sub lanceolate to oblanceolate, asymmetric, the distal ones up to 3×10 cm, the proximal ones 2×6 cm, base cuneate, apex distinctly acuminate; upper surface rather dull, dark (in sicco), midrib prominulous; lower surface pale brown (in sicco), prominulously reticulate, midrib prominent, lateral nerves ca 9 pairs.

Inflorescences axillary and terminal; the umbels on slender, up to 2 cm long peduncles. Flowers sessile; calyx campanulate, 2-3 mm long with short teeth; corolla tube as long as the calyx tube, lobes rather slender, 1 mm long, slightly pilose towards apex; ovary stipitate, glabrous.

Typus: Chevalier 30019 (P.).

Close to *Abarema lucida* (Bth.) Kosterm., but the flowers glabrous and another type of glands.

Also close to *A. gunnanense* Kosterm. but the glands and the corolla tube different.



Pl. 2. — *Abarema muricarpa* Kosterm. : a, holotype; b, Brass 25547 (BO).

43. **Abarema muricarpa** Kosterm., spec. nov. (Pl. 2 a et b).

Arbor mediocris, foliis bipinnatis, foliolis 1-3-jugatis subtus pilosis ellipticis subsessilibus, 6-7-nerviis, stipulis conspicuis basi foliis impositis, infructescentiis parvis; fructus muricatus profunde lobatus.

Tree, 8-10 m tall, well branched. Bark grey-green; wood white, branchlets brown pilose; branches glossy, grey, glabrous. Leaves bipinnate main petiole brown tomentose, short (up to 1 cm), grey-white, with two acicular, slender, pilose, acute up to 10 mm long, erect, patent stipules at both sides of the petiole on the branch; rachillae two, 2.5-9 cm long, tomentellous, bearing each one or two pairs of distal folioles and a single proximal foliole; between the insertion of the petiolules stalked, slender, round glands, which are sunk in the middle; a similar gland between the bases of the rachillae; folioles asymmetric, elliptic to narrowly elliptic, often subobovate-elliptic; the distal ones up to 8×18.5 cm, but often only 2.5×6.5 cm; base rounded to subacute, apex distinctly acuminate, upper surface glabrescent, grey (in sicco), slightly bullate (in sicco), midrib and lateral nerves prominulous in a groove, reticulation faint, dense; lower surface tomentose (hairs rather sparse), midrib strongly prominent, lateral nerves 6-7 pairs, arcuately anastomosing at some distance from the margin, secondary nerves prominent, forming a lax reticulation. Petiolules tomentose, short (1-1.5 mm). Young leaves pale pinkish green (in living state).

Infructescence on the bare branches, bright red, muricate, submoniliformous, semicircularly curved, up to 4 cm long, over the seeds 1.5 cm wide, 5 mm thick, dehiscent along the deeply lobed ventral suture. Seeds dull, black, germinating before leaving the pod.

Typus: Womersley & Gray, NGF 8612 (BO).

The species is related to *A. Fournieri* (Vieillard) Kosterm. (*A. cycloperma*) by the presence of conspicuous stipules, although they are far smaller than those in *A. Fournieri*. In habit it resembles much *A. Hendersonii*, which has, however glabrous leaves and I did not see stipules; I have not seen the pod of *A. Hendersonii*; the description does not mention, however, muricateness.

Papua, Eastern Div., Normanby Isl., alt. 15 m, April, fr., Womersley & Gray NGF 8612 (BO, K); *ibid.*, Waikaiuna, April, fr., Brass 25547 (BO).

44. **Abarema Kalkmanii** Kosterm., spec. nov. (Pl. 3).

Arbor foliis bipinnatis, pinnis 3-4-jugatis, pedunculis longis foliolis subcoriaceis glabris ovatis usque ad ovato-ellipticis, basi cuneatis apice obscure acuminatis, utrinque reticulatis, costis utrinque 3-5; petiolulis parvis pulverulente pilosis, glandulis parvis; inflorescentiis terminalibus magnis pedunculis crassis umbellulis pedunculatis minutis, floribus sessilibus pilosis in genere magnis.

Tree, up to 19 m tall and 33 cm in diam.; branches striate, minutely lenticellate, pulverulently pilose, glabrescent. Leaves bipinnate, pinnae



Pl. 3. — *Abarema Kalkmannii* Kosterm. : Kalkman BW 3602 (BO).

3-4-jugate; peduncle up to 16 cm long (of which the petiolar part 10 cm) with rather obscure, round, slightly protruding glands between the bases of the rachillae, pulverulently pilose, distal rachillae up to 19 cm long, proximal ones 10 cm, bearing 3-4 (distal) to 3 (proximal) pairs of opposite folioles. Folioles sub-coriaceous, glabrous, ovate to ovate-elliptical, the apical ones up to 6 × 10 cm, the basal ones 3 × 4 cm, base cuneate, apex shortly, usually obscurely acuminate; both surfaces distinctly, prominently reticulate; lateral nerves 3-5 pairs, arcuate towards the margins; petiolules pulverulently pilose, 2-3 mm long; in between their bases a rather obscure, round gland.

Inflorescence terminal, stout, densely brown pulverulently pilose, up to 33 cm long, consisting of a main, stout peduncle, which bears widely spaced, stalked umbels, one or more on warty protuberances of the peduncle. Umbel stalks up to 2 cm long, rather slender, pilose. Flowers subsessile (a short neck at base), densely, shortly brown pilose. Calyx broadly campanulate, 2-2.5 mm high with hardly visible teeth; corolla white (fresh), tube slender, up to 10 mm, long lobes slender, acute, 3-4 mm long; stamens up to 25 mm long. Style longer than the stamens with a capitate stigma.

Typus: Kalkman BW 3602 (BO).

Related to *A. novoguineense*.

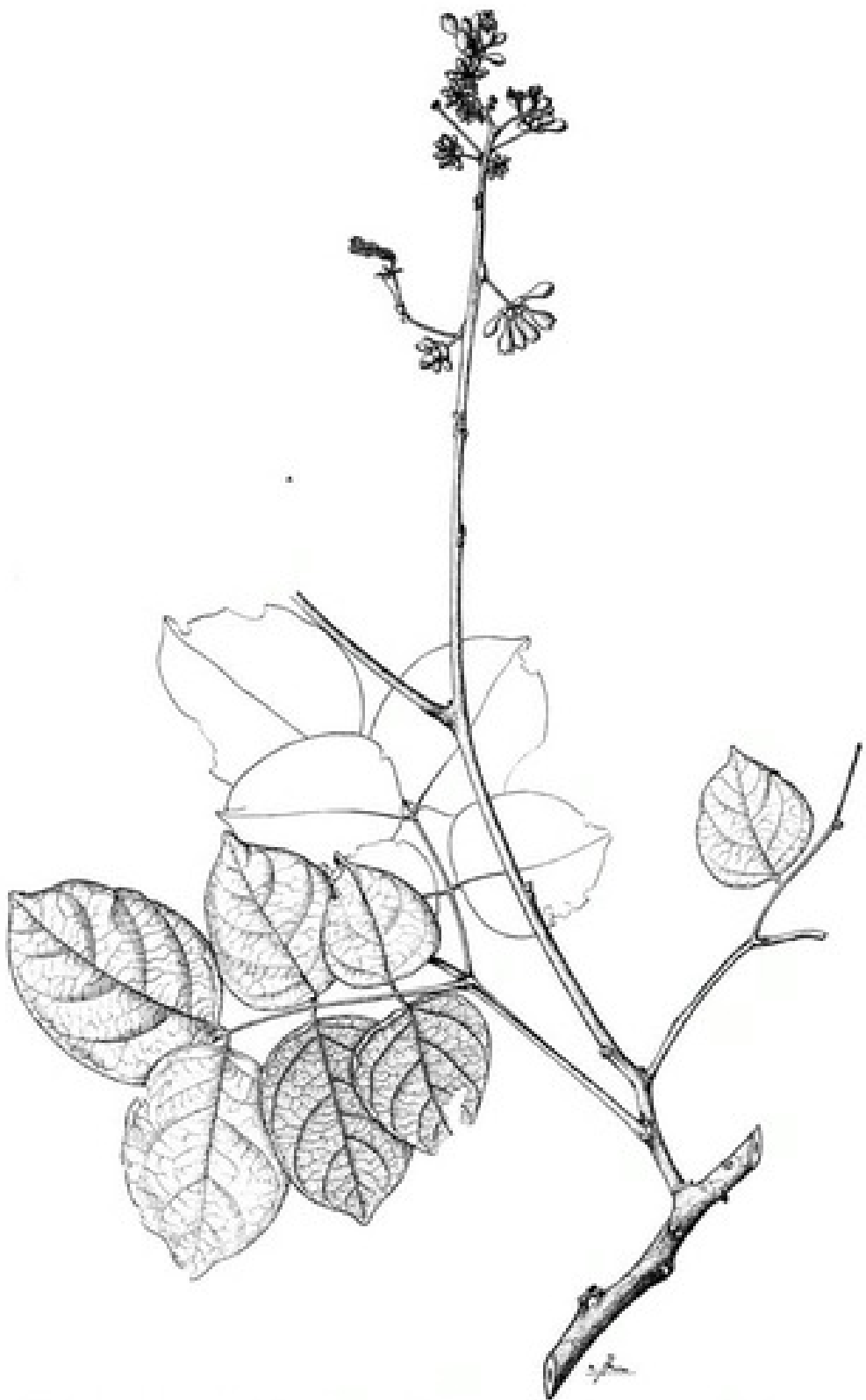
W. IRIAN : Hill N. of Sukarnopura (Hollandia), alt. 50 m, July, fl., hb. 25645 (A, BO, L); *ibid.*, Sentani lake, secondary forest, stony soil, alt. 70 m, Sept., fl., Kalkman BW 3602 (BO, L).

45. *Abarema gracillima* Kosterm., spec. nov. (Pl. 4).

Arbor parva in omnibus partibus glabra, foliis bipinnatis, pinnis 3-4-jugatis glandulis orbicularibus, foliolis oppositis membranaceis, costis basalibus adscendentibus; inflorescentiis subaxillaribus pergracilibus paucifloris peraxis, tubo corollari tubum calycinum subaequante; legumen applanatum inter semina profunde incisum.

? Treelet, glabrous in all its part. Branchlets pale, slender. Leaves bipinnate, pinnae (2-) 4- jugate; petiole (4-) 9 cm long, smooth, with a round, slightly prominent gland just above the dark (in sicco), swollen, 4 mm long basal part of the petiole and one between the bases of the rachillae; rachillae two, (10-) 20 cm long with (2-) 4 pairs of opposite (the proximal pair sub-opposite) membranaceous, glabrous, folioles; between the petiolules small, round rimmed glands. Folioles ovate (rarely subobovate or elliptical); the distal ones up to 9 × 17 cm; the proximal ones 5 × 9 cm; base acute, apex conspicuously caudate-acuminate; both surfaces obscurely prominently reticulate; lateral nerves 4-5 (-6) pairs, the lowest pair ascendant to 2/3 of the lamina, the bases of the lower nerves descendant along the midrib. Petiolules slender, 5-7 mm long.

Inflorescences on the bare branches or sub-axillary, glabrous, very slender, narrow, consisting of a main peduncle, up to 20 cm long, bearing



Pl. 4. — *Abarema gracilissima* Kosterm. : Beccari P.P. 577 (Firenze 3529 B)

widely spaced branchlets (up to 2.5 cm long), but usually much shorter, two together in the axil of a small, ovate, acute bract. Flowers single or in 2-3-flowered umbels ou filiform, 4-7 mm long peduncles. Calyx campanulate, ca. 1.5 mm high, with broad, rather obtuse, 0.5 mm high lobes. Corolla tube as long as the calyx tube, lobes elliptic, 3 mm long. Ovary glabrous.

Pods S-shaped, flattened, red, deeply incised (almost to the opposite suture), ca. 8 cm long, over the seeds 1.5 cm wide; seeds black, ellipsoid, ca. 15 mm long.

Typus: Beccari P.P. 577 (FI).

In foliole shape the species resembles *A. mindanaense*. It is characterized by the slender, glabrous inflorescence, the long-pedicelled flowers, the short corolla tube and the deeply incised pods.

The dehiscence is complete along both sutures, but the valves do not or hardly twist after dehiscence.

The Inokuma & Hara specimen has smaller folioles and less pinnac (indicated between brackets in the description), but belongs certainly here.

W. IRIAN : Andai near Mandokwari, fl., fr., Beccari P. P. 577 = Herb. Firenze 3529 (3 sheets); *ibid.*, Tjumbang Patima, May, fr., Inokuma & Hara 301-1 (TI).

46. *Abarema Muelleriana* (M. & B.) Kosterm., comb. nov.

BASIONYM : *Albizzia Muelleriana* J. H. MAIDEN & R. F. BAKER in Proc. Linn. Soc. New S. Wales, Sér. 2, **10** : 585 (1896); FRANCIS, Austr. rainfor. Trees : 161 (1951) (*Pithecellobium*) — Von Mueller s. n., Richmond R. (BRI).

Through the courtesy of the Queensland Herbarium, I received a fragment and photograph of the type specimen. For this cooperation I herewith express my gratitude.

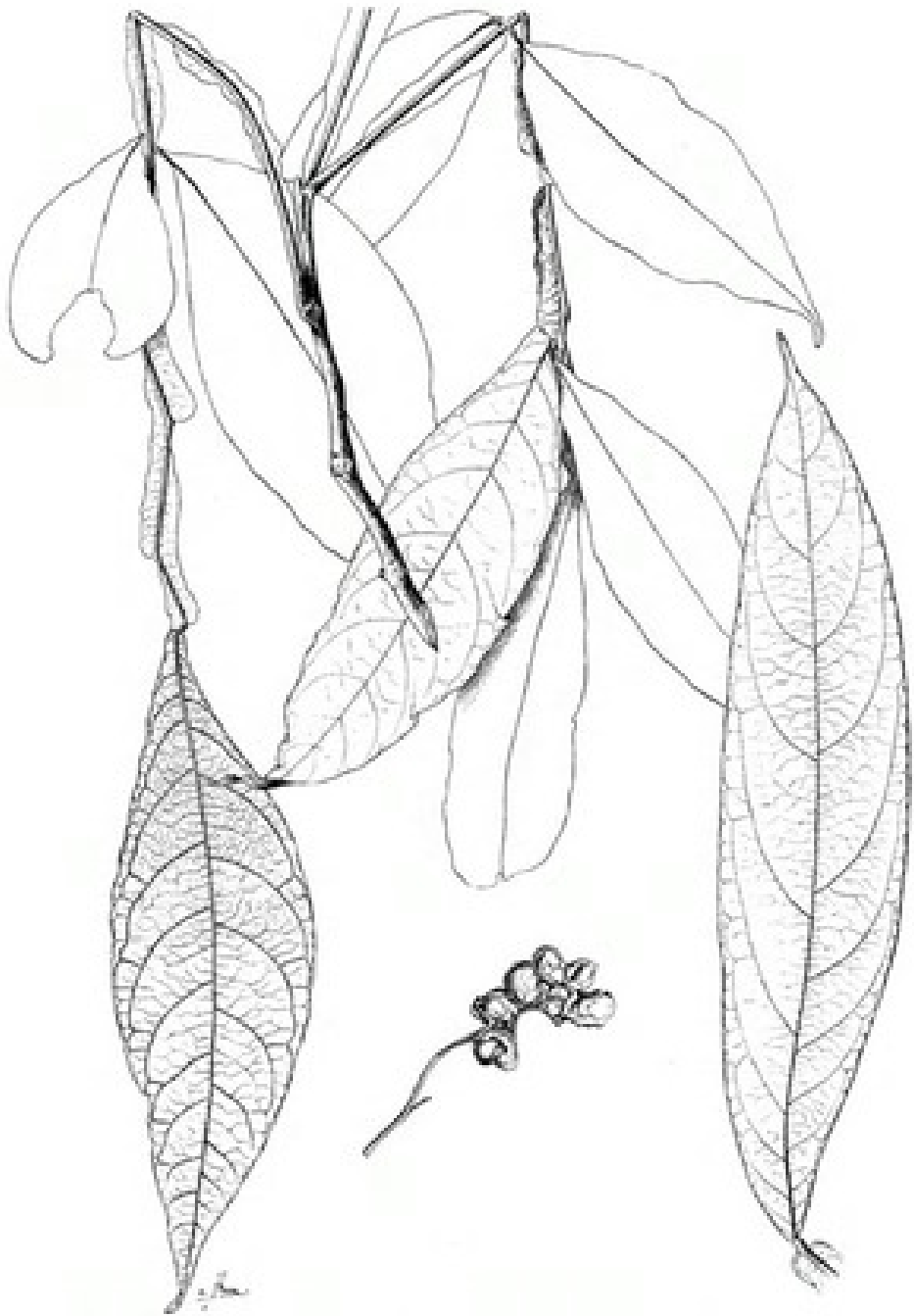
The specimen: H. Hayes, collected Nov. 1896 at Nullum State Forest via Murwillumbah is in flower (it is also represented in the DE CANDOLLE and in the Kew Herbarium); the specimen: L. S. Smith 5111, fl., Dec., was collected in N. New S. Wales in the Dorrroughby area from a tree 4 m high (BO, BRI); Aktonville, Marshal Fall, Dec., fl., fr., W. B. 705 (UC).

The fruit, represented in the type specimen makes it certain that the species belongs in *Abarema*.

47. *Pithecellobium megaphyllum* Kan. & Hat.

This species, based on the specimen: Kanehira & Hatusima 12980 (FU) was published in Aug. 1942 in the Bot. Mag. Tokyo **56** : 360, fig. 4 (1942).

In Reinwardtia **3** : 23 (1954) I suggested that it should be identical with *Archidendron calliandrum* de Wit, according to de Wit's description of the species. KANEHIRA and HATUSIMA's specific epithet cannot be used, because of *Archidendron megaphyllum* Merrill & Perry (in J. Arnold Arb. **23** : 392 (oct. 1942), although KANEHIRA & HATUSIMA's name has



Pl. 5. — *Archidendron Rogenii* Kosterm. : P. van Royen 5309 (BO).

priority (published in Aug. 1942). Both species seem to be very similar and differ, according to the description, only in their pilosity.

This remarkable "Schopfbäumchen" has not been collected again.

48. **Archidendron Royenii** Kosterm., spec. nov. (Pl. 5).

Arbor mediocris, foliis bipinnatis, pinnis 6-jugis, foliolis chartaceis lanceolatis subaequalibus apice acuminatis, costis utrinque 4-5, petiolulis distinctis, racemis caulifloris parvis glabris, floribus pedicellatis calycibus parvis lobis minutissimis tubo corollae calycem superante.

Small tree, ca. 5 m high and 8 cm in diam. Bark smooth, glossy, olivebrown. Leaves bipinnate, one (?) pair of pinnae; pinnae 6-jugate; peduncle more than 5 cm long, cylindrical, laxly brown puberulous; rachillae two, 15 cm long, laxly brown puberulous, bases swollen, a small round gland in between, top of rachillae protruded into a 7 mm long, slender stipe. Folioles 6 pairs, opposite (the proximal one unpaired), chartaceous, lanceolate, base asymmetric, $2.5-3 \times 7-8$ cm, all more or less equal in size, apex acuminate with a slender, sharp tip, base acutish or rounded; both surfaces laxly, shortly pilose, lateral nerves 4-5 pairs, arcuate at the margin, somewhat impressed above, prominent on the lower surface. Petiolules 2-3 mm long, densely pilose; between their bases a small, round, prominulous gland.

Racemes cauliflorous, simple, glabrous, up to 2 cm long; peduncle slender, the florets congested near its apex. Flower pedicel slender, 4-5 mm long; calyx 1.5-2 mm high, teeth minute; corolla tube 3 mm long; lobes 2 mm, acute.

Typus: Van Royen 5309 (BO).

Related to *A. nervosum* de Wit by its inflorescence characters.

The specimen has been distributed as *Pithecellobium*, but the cauliflorous racemes point to *Archidendron*. The flower available were too few in number to dissect.

The leaf of the available specimen is cut off above its base, hence I do not know for sure, whether it has only two rachillae.

DISTRIBUTION : Only known from the type locality, W. Irian, distr. Radjah Ampat, Waigeo Isl., path across the E. Peninsula from Wekasan to Kabaré, on w. slope of the Lilal Hills, Unja Creek, alt. 100 m, Jan., fl., Van Royen 5309 (BO).

49. **Affonsea pteropoda** Kosterm., spec. nov. (Pl. 6).

Arbor foliis simpliciter pinnatis, rachibus alatis, foliolis suboppositis, paucis, glabris, membranaceis, subsessilibus, apice subcaudatis, basi inaequalibus costis utrinque 8-11, racemis axillaribus parvis dense pulverulente pilosis, floribus? sessilibus, calycibus urceolatis dense pilosis lobis minutissimis; corolla glabra, tubo 3 mm longo.

Tree. Branches cylindrical, glabrous, bearing large asymmetrically protruding leaf scars. Leaves simply pinnate, glabrous; rachis winged,



Pl. 6. — *Affonsea pteropoda* Kosterm. : D'Albertis ss. n° (Firenze 3544) et 3545, leaf right.

up to 27 cm long; wing membranous, reticulate, up to 1 cm wide, gradually widening from the base upwards, at the insertion of the folioles constricted again and then absent. Folioles subopposite, three pairs, papery, lanceolate to ovate-lanceolate, base asymmetric, contracted into a hardly visible, thick petiole, apex sub-caudately acuminate, $4-7 \times 10-25$ cm, both surfaces prominulously reticulate, midrib slightly prominent on upper, strongly prominent on lower surface; lateral nerves 8-11 pairs, arcuate, prominent on lower surface.

Racemes axillary, slender, 15-40 mm long, densely pulverulently pilose. Flowers sessile (?); calyx urceolate, densely brown pulverulently pilose, 2-2.5 mm long with short teeth; corolla glabrous, tube 3 mm long, lobes lanceolate, 3 mm long, filament tube 4 mm long, free part of filaments broad.

Pod twisted, about 6 cm long, flattened, glabrous, deeply incised between the seeds, 13 mm wide over the seeds.

Typus: D'Albertis s. n., anno 1877 (F1).

This peculiar species, outstanding by its winged, simply pinnate leaves, I have referred here to *Affonsea*, although there is only a single pod in the flower of the fruiting specimen.

The two other sheets with flowers are in such a bad condition, that only a single flower was available for dissection. Of this flower the upper part of the filaments had disappeared and no ovary (ies) was (were) present any more. The raceme-like inflorescence points to *Archidendron* or *Affonsea* and as winged leaves were only described in *Archidendron alatum* DE WIT and our species is once pinnate, I thought it better to refer it to *Affonsea* than to *Inga*.

Neither *Affonsea* nor *Inga* are known so far from the Old World.

NEW GUINEA : Fly R., fl. (2 sheets), d'Albertis s. n., anno 1877 (F1) = Herb. Firenze 3544; *ibid.*, fr. (one sheet), leaves narrower, d'Albertis s. n., anno 1879 (= Herb. Firenze 3545).



Kostermans, A. J. G.H. 1966. "Notes on some Asian Mimosaceous genera." *Adansonia* 6(3), 351–373.

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