

Notes on New and Critical Far Eastern *Phyllanthus*

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Phyllanthus flexuosus is the species discussed in the present paper that immediately interests the flora of Japan. It is increasingly clear, however, that practically no region of Asia has a flora unrelated with the floras of the adjacent domains. Thus, it is scarcely possible to treat Chinese and Japanese *Euphorbiaceae* as independent entities on the basis of presumed geographic limits. The flora of Anhwei and Chekiang is rich in forms that formerly were supposed to be restricted to Japan and to its immediate floristic dependencies, but Anhwei and Chekiang prove to be merely the gateway to a large flora that reaches Indo-China and northern India. While it is true that the species are neither always, nor even often, the same at all points of this plant-world, it is undeniable that a critical revision must take into account affinities beyond the species and the section, without regard to immediate political boundaries.

The purpose of this paper, consequently, is to clear some questions of synonymy which involve species common, wholly or in part, directly or indirectly, to Japan, China, and N.W. India, and to contribute some data of general interest for the history of *Phyllanthus* in the Far East.

LEANDRI's critical notes on *Phyllanthus nummulariaefolius* and *P. Casticum* [Not. Syst. 7(4): 168-80 (1939)] give a fair idea of the difficulties involved in a treatment of this genus. Much of the present work was made possible by the use of fragments of classic or semi-classic specimens generously given to the author by Prof. H. HUMBERT, director of the section of phanerogamy of the Muséum d'Histoire Naturelle of Paris. These fragments are now all the more precious, as it may be feared that the Parisian herbarium has been lost during the current war.

Unless otherwise specified, all the specimens and fragments mentioned are preserved in the herbarium of the Arnold Arboretum.

Phyllanthus flexuosus (S. & Z.) MUELL. ARG. in DC. Prodr. 15 (2): 324 (1866); HEMSLEY, Jour. Linn. Soc. 26: 421 (1894); HUTCHINSON, Plant. Wils. 2: 519 (1916); REHDER & WILSON, Jour. Arnold Arbor. 8: 153 (1927).

Phyllanthus glaucus MUELL. ARG. in Linnæa 32: 14 (1863); HOOKER f., Fl. Brit. Ind. 5: 288 (1887); HANDEL-MAZZETTI, Symb. Sin. 7: 222 (1931), *syn. nov.*

Phyllanthus flueggeiformis MUELL. ARG. in DC. Prodr. 15 (2): 349 (1866).

Phyllanthus griseus WALL. ex J. D. HOOK., Fl. Brit. India 5: 289 (1887).

Cicca flexuosa SIEB. & ZUCC. Abh. Akad. Muench. 4 (2): 143 (1845).

Glochidion flexuosum (SIEB. & ZUCC.) MUELL. ARG. in MIQUEL, Ann. Mus. Lugd.-Bat. 3: 128 (1867); PAX & HOFFMANN in Natürl. Pflanzenf. 19 (c): 58 (1931).

Flueggea grisea (an mss.?) J. D. H. & T. T. in herb. Paris.

MUELLER ARGOVIENSIS (op. cit., loc. cit.) has treated *P. flexuosus* as the type of sect. *Hemicicca* and has brought *P. flueggeiformis* [i.e. *P. glaucus*] under sect. *Flueggopsis* as "species dubia". Later he has changed his opinion and has transferred *P. flexuosus* to *Glochidion*, in which he has now been followed by PAX & HOFFMANN. Thus, the entity known to the majority of botanists under the name of *P. flexuosus* has a synonymy involving three genera (*Phyllanthus*, *Glochidion*, *Cicca*), three sections (*Hemicicca*, *Flueggeopsis*, *Glochidion*), and at least two specific names (*flexuosus*, *glaucus*) variously combined.

At the end of a careful study of many specimens variously determined as *P. flexuosus* and *P. glaucus* by a number of authors I have been forced to conclude that it is impossible—at least using herbarium material—to separate these specimens into tolerably different units either on the ground of morphology or on that of geography. There can be no question of different genera and species being involved by these plants; they all fall under the same binomial and little justification, if any, is forthcoming for the reductions and transfers of MUELLER ARGOVIENSIS and PAX & HOFFMANN.

As HARA and myself have stated in a previous paper, *Phyllanthus flexuosus* is certainly not a *Glochidion*; to treat it as such the authors cited above have actually stultified the generic concept of both of *Phyllanthus* and of *Glochidion*. MUELLER ARG. has been stringently criticized by BENTHAM (Jour. Linn. Soc. 17: 188. 1878) who has shown how flimsy are the characters used by MUELLER to advance taxonomic groups which are merely to be regarded as natural aggregates. *Glochidion* is a natural aggregate, a "good genus" in China and a "bad genus" in New Caledonia and Oceania. The "singular modification" of the styles and of the stigma alluded to by HOOKER (op. cit., 306) is not found in *G. sericeum*, and none of the characters (absence of disc, habit) which are said to support *Glochidion* as a distinct genus, have validity because these characters are found in various degrees in species of sect. *Pentaglochidion*, *Scleroglochidion*, etc., which I am utterly unable to separate from *Phyllanthus* on anything but the sheerest of intangibles. *Glochidion*—be this clear—is a traditional genus, a habit-aggregate and purely as such it is to be accepted or rejected. MUELLER ARG. is just as correct in treating it as a section of *Phyllanthus* [DC. Prodr. 15 (2): 278–314 (1866)] as was HOOKER in giving to it a full generic status [Flor. Brit. Ind. 5: 305–326 (1887)], because he wished to comply with the requests of Indian botanists in the "nomenclature of so very large and universally distributed an Indian genus." Chinese and Japanese botanists who may be inclined to follow PAX & HOFFMANN in treating *P. flexuosus* as *Glochidion* will do well in comparing this species with a classic species of this genus, such as for instance *G. puberum*, reaching thereafter their own conclusion. *Phyllanthus flexuosus*, not unlike *P. microcarpus*, *P. nummulariaefolius*, *P. parvifolius*, *P. Niruri*, etc., is a geographically widespread entity which occurs in many different states and forms but does not appear actually to segregate in recognizable taxonomic units deserving specific rank. It may eventually be found expedient to arrange the *P. flexuosus*-*P. glaucus* unit into subspecific and varietal aggregates, but despite the abundance of Chinese and Japanese material available in the herbarium of the Arnold Arboretum, I feel that more Indian material is needed than is now available to work out the classification of this group in full detail.

Under *P. glaucus* HOOKER cites [Fl. Brit. India, 5: 289 (1887)] specimen of MARIES collected at Kiukiang, Kiangsi, which he states, "have rather long styles". Specimens of this description have been consistently treated as *P. flexuosus* by REHDER & WILSON; HITCHINSON who has used *P. flexuosus* in his work has determined as *P. flexuosus* and as *P. glaucus*, respectively, Wilson 3540, W. Hupeh; and Macgregor s.d., Ningpo; which are manifestly the same species. A fragment of GRIFFITH 4838, which is probably the specimen seen by MULLER ARG. fully agrees with RUSS 51, collected in the Jaintia Hills at the upper Shillong, which is a classic locality of *P. glaucus*. This Indian material differs from specimens collected in Kiangsu (WANG-TE-HUI 92 and 129) precisely as HOOKER states, in having shorter styles. Japanese specimens, however, may also be said to differ from the Chinese material in certain details, as for instance, the slightly larger ♂ flower, the longer pedicel of the ♀ flower, etc. These differences do not impress me as being more significant than individual variations. An accurate field-study of whole populations of *P. flexuosus* in the Japan-Khasia range seems to be a necessary preliminary to learning whether changes of floral morphology involving, e.g. the length of the style may be used for taxonomic grouping. As an illustration of the wide variability of *P. flexuosus*, I wish to quote HANDEL-MAZZETTI (op. cit., 222) who found that one of his two specimens had 3-4 stamens, the other filaments connate throughout to form a column.

Further and very exhaustive investigations are required to determine the limits between *P. flexuosus* and *P. reticulatus*. MUELLER ARG. maintains *P. microcarpus* and *P. reticulatus* as distinct species [DC. Prodr. 15 (2): 343-5 (1866)], breaking up the former in three varieties *dalbergioides*; *genuinus*; *pallidus*, and the latter in two, *genuinus* and *glaber*. According to MUELL. ARG. the distribution of the two species and their varieties is uncommonly wide, ranging from Australia to the Islands of Cabo Verde and, perhaps as an introduced plant, to Jamaica. In herbarium, *P. reticulatus* cannot be distinguished from *P. microcarpus* in any satisfactory manner. Critical specimens also occur which it is difficult to place with certainty under *P. flexuosus* rather than under *P. reticulatus*. MUELLER ARG. recognizes the fact that the characters of *P. reticulatus* (= *P. microcarpus genuinus*) require an apprecia-

tion of morphology, stating (op. cit. 344) "Ramuli fasciculati, exterior eujusvis fasciuli reliquis major, quasi folium pinnatum simulans, folia simulque flores gerens; inferiores saepius magis parvifolii, haud raro post lapsum foliorum racemum simulantes." This may be interpreted as follows: the "branches" (ramuli) are not *actual branches*, but specialized floriferous axes which, morphologically speaking, have intermediate nature between true vegetative axes and bracteate racemes. The *true leaf* in these plants is abortive in the axils below the racemes as a setaceous stipule or a blunt scale. In typic specimens of *P. reticulatus* the "branches" can properly be described as bracteate racemes and look, after the fall of the bracts, like true racemes. In *P. flexuosus*, on the contrary, the "branches"—although identical in nature to those of *P. reticulatus*—retain the habit of true branches, being longer, more evolute, less crowded, and evidently less fasciculate than those of *P. reticulatus*. Thus, it may be suspected that *P. flexuosus* and *P. reticulatus* are phylogenetic derivations of the same original form, *P. flexuosus*, tending to evolve true floriferous branches (cf. *Putranjiva*, *Drypetes*) and *P. reticulatus*, on the contrary, tending to evolve highly specialized floriferous axes (cf. *P. urinaria*). Characters of habit, pubescence, minor differences in the perianths, etc., must be appraised with due regard to these fundamental tendencies, considering MUELLER ARG.'s treatment of these species as wholly provisional.

Phyllanthus Clarkei HOOK. f., Fl. Brit. Ind. 5: 297 (1887).

Phyllanthus simplex var. *tonkinensis* BEILLE in Fl. Gén. Indo-Chine 5: 578 (1927), *syn. nov.*

A deflorate fragment of GRIFFITH 4801, collected in "East Bengal" but said by HOOKER to have come from Upper Assam is in our herbarium. The reflexed calyx lobes of the ♀ flower are more minute than those of *P. nummulariaefolius* and the pedicels are longer, but the material can scarcely be distinguished otherwise from specimens of the latter species collected in Madagascar, verified by LÉANDRI (e.g., DÉCARY 5206). WANG 80150, Yunnan: Lung-huk, Jenn-yeh Hsien, October 1936, alt. 1000 m, described as a herb growing on a mountain slope, and CHING 7517; Kwangsi, Bako Shan W.

Poseh, 3000 ft. (in herb. Lingnan University), I believe to be *Phyllanthus Clarkei*. These specimens closely agree with BALANSA 3296 (collected at Cho-bo: Rivière Noire Tonkin), which BEILLE treats mistakenly as *P. simplex* var. *tonkinensis*.

Four other specimens, HENRY 12096 and 12096A, Yunnan, China: Szemao, in forest, 4500', which are described as slender shrubs 3' and 5' tall; STRACHEY & WINTERBOTTOM 3, Mohargari Kumaon, India: OSMASTON 1505, Namik, East Almora, India distributed as *P. reticulatus*; probably belong to *P. Clarkei*. Better material, especially capsules and seeds, are needed to perfect the determination.

On the basis of the cited specimens the range of *P. Clarkei* or of the forms of its immediate vicinity may be outlined as follows: Sikkim and Upper Assam, Yunnan, Kwangsi, and N. W. Tonkin. This species is probably the northermost representative of the *P. nummulariaefolius* group.

Phyllanthus Rheedii WIGHT Icon. Plant. Ind. Orient. pl. 1895, fig. 1 (1852); MUELL. ARG. in DC. Prodr. 15 (2): 363 (1866).

Phyllanthus flaccidus THWAITES Enumer. 283 (1864).

Phyllanthus Leschenaultii MUELL. ARG. in DC. Prodr. 15 (2): 398 (1866); HOOK. f. Fl. Brit. Ind. 5: 296 (1887).

This synonymy is based upon fragments of the types or isotypes. LESCHENAULT 129, Sud de la Péninsule de l'Inde (type of *P. Leschenaultii*) does not have the prominent stipules of THWAITES 320, (type of *P. flaccidus* and *P. Rheedii*), but this is even less material than the difference in the size of the lobes of the ♀ perianthus apparent in various specimens distributed as THWAITES 320. The pedicel of the ♀ flower—at least in fruit—is more or less 2-winged, this being the best character by which to separate *P. Rheedii* from *P. nummulariaefolius* (*P. tenellus*) in herbarium.

Although *P. Rheedii* does not immediately interest the flora of China, it may not be neglected by students of Far Eastern floras because HOOKER has identified as *P. Leschenaultii*, material of Khasian origin, collected "at the Kullung Rock." A fragment of this collection is in our herbarium and it has the typical calyx-lobes of *P. Clarkei*, which makes it fairly sure that the

Khasian record of *P. Leschenaultii* is based upon the misdetermination of a specimen of the former species.

Phyllanthus missionis is typified by a specimen of HEYNE which I have not seen. HOOKER describes it (op. cit., 297) as a "very distinct species in the obtuse stipules, clustered flowers and longer styles not reflexed on the ovary but rising up." I have not seen so far a specimen of *Phyllanthus* from Southern India that answers this description.

Phyllanthus Hookeri MUELL. ARG. in *Linnaea* 32: 19 (1863); in DC. Prodr. 15 (2): 366 (1866).

P. tsarongensis W. W. SM. in Not. Bot. Gard. Edinb. 13: 177 (1921); HANDEL-MAZZETTI, Symb. Sin. 7: 223 (1931).

I am unable to find valid characters to separate FORREST 18964, S. E. TIBET and WANG 6615, Sikang, representing *P. tsarongensis* from "*Phyllanthus* 7, J.D.H. & T.T., Mt. Khasia 3-4000," which is an isotype of *P. Hookeri*. In all these specimens the leaf has the same venation on both faces, reminiscent of *P. urinaria*, the same habit of the minute perianths, the same angled stems.

Phyllanthus Hookeri is essentially woody and has immediate affinity with the group that includes *P. Roeperianus* and *P. Wilfordii* CROIZ. & METC. (*P. anceps* BENTH.), rather than with *P. urinaria*. HANDEL-MAZZETTI remarks that *P. Hookeri* (*P. tsarongensis*) is not correctly placed under sect. *Euphyllanthus*. By decision of the Rules of Nomenclature, the lectotype of *Phyllanthus* must be *P. Niruri*, which, consequently, also typifies sect. *Euphyllanthus* MUELL. ARG. On the basis of this typification HANDEL-MAZZETTI's admadversion is correct, but it remains to be seen whether *P. Hookeri* belongs—as HANDEL-MAZZETTI claims—to sect. *Paraphyllanthus* MUELL. ARG.

Phyllanthus subpulchellus (*Eriococcus*) CROIZ. sp. nov.

Fruticulus ad 3 ped. altus, totus glaber; ramis lignosis plus minusve rubro-brunneis, adultis cortice longitudinaliter rimuloso. Ramulis florigeris gracilibus vel gracillimis ad 13 cm longis, stipulis longe triangularibus integris vel subintegris, 2-2.5 mm longis, foliis (revera bracteis floralibus) ad 15, supra pallide olivaceis, subtus plus minusve cinereis, distichis, 10-17 mm longis.

5 mm. latis, ellipticis late, late rotundato-acutatis, petiolo subnullo, integris, margine tenuiter incrassati, venis irregularibus ca. 4-jugis, obscuris, stipulis longe triangularibus, parcius denticulato-serratis vel subintegris, apice setaceis, 1.5–2 mm longis. Flos ♂ ca. 3 mm. latus: lobis 4, subhyalinis, medio venosis, late ovatis, margine obiter denticulato-erosis vel obscurissime irregulariter crenulatis, 1.5 mm longis, 1 mm latis; staminibus 4, antheris sessilibus, disco vix 1 mm lato, pedicello capilliformi, ad 10–12 mm longo. Flos ♀ ca. 4–5 mm lato, lobis 6 late obovatis, basi coarctatis, 2 mm longis, 1.25 mm latis, caeterum iis floris ♂ simillimis; ovario glaberrimo, ca. 1.5 mm lato, globuloso [ut videtur], stylis 3 bipartitis ad 1 mm longis, disco lobulato ad 2 mm lato; coccis [delapsis] tenuibus, epicapio brunneo, levi, secedibili, ad 2.5 mm longis; semine rubro-brunneo, sublevi, lunato, 1.5 mm longo, 1 mm lato, columella 3 mm longa; pedicello capilliformi ad 15 mm longo.

HENRY 12, 118A, Yunnan: Szemao, S. mts. 4000', shrub 3' white flowers (typus); HENRY 12, 118 same locality; HENRY same locality, south forests 5000', slender shrub 5'; WANG 1936, 74141, Yunnan: Fo-Hai, 1540 m, bush 1 ft (two sheets); same collector and locality, 77219, alt. 1800 m, open slope.

The characters are those common to the species of subg. *Eriococcus*, but the glabrous ovary, the small very broadly elliptic, not cultriform, leaves are characteristic. It may easily be confused at first sight with the species in the vicinity of *P. Clarkei* on account of the comparatively conspicuous often whitish lobes of the ♀ flower.

Phyllanthus Forrestii W. W. SM. Notes Bot. Gard. Edin. 8: 195 (1914).

An isotype, FORREST 10739, is in our herbarium. Other collections are: FORREST 11041, Yunnan; Simeon Ten 420, Yunnan: Kouty, frutex 0.50–1 m; ROCK 24674, Yunnan: Distr. Chung-tien, alpine meadows north of Chung-tien in Tongwa territory, pine forest alt. 10,000; SCHNEIDER 2404, Yunnan: in cecl. ad flum. Yangtze prope Shiku versus Chungtien; DELAVAY 396, Yunnan: endroits rocailleux et collines au dessus de Ta-pin-tze; Delavay s.n. (?) Yunnan: les bois à Mo-che-tchin.

DELAVAY 396 bears BELLE's determination *Phyllanthus leptoclados* BENTH., which is a misapplication. The true *Phyllanthus leptoclados* is a much more

delicate plant, with flowers at least only half as large as those of *P. Forrestii*.

Phyllanthus Forrestii is not to be confused with *P. asteranthos* which has very different shaped leaves and lesser perianth lobes.

Phyllanthus Bodinieri (LÉVL.) REHD. in Jour. Arn. Arb. 18: 212 (1937).

Phyllanthus sp., REHD. in op. cit., 14: 231 (1933); *Sterculia Bodinieri* LÉVEILLÉ Fl. Kouy-Teheon 406 (1915).

REHDER gives a detailed account of this interesting species. *Phyllanthus Bodinieri* is a transitional stage between the true *Eriococcus* group which is essentially represented by *P. pulcher*, and the aggregate of *P. baeobothryoides*. The phylogenetic ties that bind, or may bind, these two groups remain to be carefully investigated and their study will throw much light upon the confused relationships of several "sections" of *Phyllanthus*. An isotype of *P. Bodinieri* has been identified as *P. rubriflorus* BEILLE by BEILLE in the Parisian herbarium. This is a misdetermination as the two species are manifestly distinct, although they are nearly related. The type-locality of *P. rubriflorus* is the island of Tré, near Nhatrang, Annam. It is interesting to notice that closely related forms occur in Kweichow and on the island of Tré, both regions being outstanding in the number and variety of their endemic plants.

Phyllanthus Franchetianus LÉVEILLÉ in Bull. Géogr. Bot. 25: 23 (1915).

As announced by REHDER [Jour. Arn. Arb. 14: 230 (1933)] fragments and a photograph of the holotype are preserved in our herbarium. An additional collection of this species in our herbarium is: MAIRE s.n. Yunnan: Rives du Fleuve Bleu, à Mong-Kou, alt. 500 m.

The type is described by MAIRE as a shrub with deciduous leaves ("arbuste à feuilles caduques") collected along the Blue River (Fleuve Bleu); the new record here listed also from the region of the same river, is described as an evergreen shrub ("arbuste buissonnant toujours vert"). The contradiction is due to MAIRE's lack of familiarity with the habit of the species of this group; the florigerous axes may fall together with the bracts (leaves), in which case the plant is a shrub with "deciduous leaves," or may persist, carrying few to many bracts until excised by the growth of the new season. In this case, the plant appears as a "bushy evergreen" throughout its rest-period.

Phyllanthus asteranthos CROIZ. sp. nov. (subg. *Eriococcus*).

Frutex 3-5 ped. altus. Ramulis florigeris sublignosis tenuiter hispidopuberulis ad glabratis, strictis, ad 35-40 cm longis; foliis (revera bracteis floralibus) ad 25, distichis, alternatis, basi stipulis lanceolatis integris, purpureis ad 3 mm longis, puberulis fultis; foliis acuminatis elliptico-lanceolatis, glabris, habitu extrorsis, anisomeris, cultriformibus, ad 3 cm longi, 1 cm latis, integerrimis, margine tenuiter revoluto, subtus griseis, venis ca. 6-jugis obscuris, supra pallide cinereo-olivaceis, tenellis brunneo-vinosis, petiolo ad 1-1.5 mm longo. Flos ♂: 4 mm latus, lobis 4, 1.5 mm longis, 1 mm latis, late triangularibus, subintegris, atro-puniceis, nervo medio excepto scariosis; disco glanduloso subquadrupartito, in medio sub lente acri tenuiter umbonato labiato, thecas 4 sessiles more subgeneris ferente, ad 1.25 mm lato; pedicello subcapilliformi ad 7-9 mm longo. Flos ♀: atropuniceus, 6-7 mm latus: lobis 6, 3.5-4 mm longis, ad 1.5 mm latis, margine denticulato-serratis, apice acutatis, basi coaretatis, lanceolatis; nervo medio crassiusculo, limbo subscarioso sub lente acri hinc hinde tenuissime striguloso; disco subintegro, margine in lobos 5-6 partito, 2 mm lato; ovario hispidulo, 3-cocco, coccois 2-ocularibus, ad 2 mm lato, stylo brevissimo potentiadpresso vix 1 mm lato; pedicello tenui, apice bene incrassato, ad 15 mm longo; seminibus immaturis leviusculis, brunneis ad 1 mm longis, 0.5 mm latis.

WANG 75325, 1936: Yunnan: Nan-chiao, alt. 1760, mt. slope in forest, 3 ft flower red (typus); WANG 77915: Yunnan: Dah-meng-lung, Che-li-Hsien, 1000 m in ravine, under dense woods; WANG 74629: Yunnan: Fo-Hai, 1030 m in thickets, small tree 5 ft; WANG 74825: same locality, 1300 m in woods; woody plant 4 ft; WANG 75842: Yunnan: Sheau-meng-yeang, Che-li Hsien, 1100 mt slope in woods, 6 ft; WANG 77050: Yunnan: Nan-Chiao, border of woods; 1 m tall.

This species, which much resembles *P. pulcher* and *P. pulchroides*, from Cochinchina, it is the only one of its kind known in Yunnan and Southern China, very easily distinguished from all other Chinese species of subg. *Eriococcus* by its knife-shaped extrorse leaves and long lignescent florigerous axes (branches of authors). *Phyllanthus Forrestii* which suggests the new species in the floral anatomy and habit has altogether different leaves and a

more delicate vegetative habit.

This plant, or a very close ally of it, is represented by specimens in Kew identified as *P. Chantrieri*, and originating from collections of VEITCH 1884, and from material of the herbarium of ANDRÉ. I much regret that it is now impossible to secure these specimens on loan and that I must rely upon notes hastily taken during my visit at Kew in the winter of 1938, without having once more the opportunity of reviewing the issues involved by the naming and labeling these specimens. I do not believe that there can be a question that *Phyllanthus asteranthos*, from Yunnan, is *P. Chantrieri* from Cochinchina; nor do I believe that the mere fact that certain specimens from VEITCH and from ANDRÉ are labeled *P. Chantrieri* in herb. Kew. proves their being authentic. *Phyllanthus Chantrieri* is described by ANDRÉ [Rev. Hortie. 55: 538 (1883)] with reference to a live specimen brought from Cochinchina by a naval officer, DUPERRÉ, and introduced in the hothouses of Chantrier FRÈRES, horticulturist at Montefontaine. The place of collection, the figures that accompany the description, the reference to a "pubescence glanduleuse blanche passant ensuite au ton roux"; and the pedicels of the ♀ flower, described as "pédoncules longs de 2 centimètres, filiformes, renflées en massue au sommet sillonnées," are in agreement with all that is known to me of *P. pulchroides* BELLE (THOREL 1109; PIERRE 1854; POILANE 21565, all from Cochinchina). The specimen illustrated by ANDRÉ is apparently about 1 ft tall and appears to be mature, while *P. asteranthos* is described as from 4 to 5 ft tall. The fruit of *P. Chantrieri* is said to be 2 cm long, 1 cm large, which is probably erroneous. The size of the fruit is not given by ANDRÉ in the Latin diagnosis (op. cit. 538); only the French text mentions it, showing that it is not necessarily to be regarded as an integral part of the original publication. I have no fruits of *P. asteranthos*, but the columella of perianthus which are past dehiscence is barely 2-3 mm long, which rules out the possibility that the capsule can be more than 5 mm long and up to 10 mm broad. In *P. pulchroides*, on the contrary the columella is fully 7-8 mm long, which makes it probable that the fruit is fully 10 mm long, and perhaps up to 15 mm broad.

In view of the discrepancies between the description and the specimens

labeled *P. Chantrieri* in Kew I believe that is neither proper nor useful to retain this binomial, for the plant presented here as *P. asteranthos*. Although the sum of available evidence points to *P. pulchroides* being a synonym of *P. Chantrieri*, I even less believe that it is proper or useful to reduce the latter to the former, bartering away a binomial of certain typification (*P. pulchroides*) with another (*P. Chantrieri*) of which the type is unknown. The lack of actual types is not felt when a flora is sketchily known, but becomes a source of controversy and difficulty when a definite understanding of the limits of a binomial is required in order to arrange critically lesser taxonomic subdivisions.

Phyllanthus urinaria L. Sp. Pl. 2: 982 (1753); MUELLER ARG. in DC. Prodr. 15 (2): 364 (1866); HOOK. f. Fl. Brit. India 5: 293 (1887).

This pandemic and widespread weed occurs in various habitat in Yunnan, some of which might indicate that it is actually endemic in the region. The following collections, all made in Yunnan by WANG in the summer and autumn of 1936, are noteworthy: 75257: Nan-Chiao, 1460 m, in ravine, herb; 75734: Sheau-meang-yeang, Che-li Hsien, 1020 m, waterside; 76305: Hei-lung-tarn, Fo-hai Hsien, 1900 m border of woods, frequent; 7741: Dah-meng-lung, Che-li Hsien, 900 m, margin of rice-field; 78726: Che-li Hsien, 850 m, ravine under dense forest; 79240: Kuen-ger, Che-li Hsien, 1000 m, woods; 79908: Mong-hain or Gan-lan-ba, Che-li Hsien, 150 m, rocks on river bank, 80253 (two sheets), Hwei-du, Jenn-yeh Hsien, 1100 m, meadow.

The great variability in leaf and habit of the species of this affinity, and of *Phyllanthus* in general, is forcibly illustrated by the cited specimens. The numbers collected from July to September (75734, 76305, 77741, 78726) are of young, easily identifiable plants. The numbers dated October-November (79240; 79908; 80253) on the contrary, are scarcely recognizable on sight. In these specimens the leaves tend to be smaller, being in some cases (79240) manifestly elliptic and reminiscent of *P. simplex*. Microphylline leaves are characteristic of the two sheets of No. 80253, which is easily confused with *P. Niruri*. A collection made in June, 75257, shows the state represented by No. 80253, but casting off new shoots from the prostrate and apparently partly buried main stem of the previous year; the leaves in this case are also fairly small (i.e., not over 10 mm long, 4 mm wide). In all cited specimens the largest leaves are 20 mm long, 8-9 mm wide, the smallest 4 mm long, 2 mm

wide.

Despite these variations in leaf and habit characters, *P. urinaria* is identified with ease; the sharp venation, the angled stem, the verruculose capsule, the sessile flowers immediately separate it from *P. Hookeri* (*P. tsarongensis*), *P. Niruri*, *P. simplex*, *P. maderaspatensis*, and *P. nummulariaefolius* with which it is often being confused in herbarium.

Phyllanthus Hookeri MUELL. ARG. is not a variety of *P. urinaria*, as claimed by HOOKER [Fl. Brit. Ind. 5: 294 (1887)] but a good species, the same which was republished by W. W. SMITH as new under the binomial *P. tsarongensis*. HOOKER's error is understandable, as the texture and venation of the leaf of *P. urinaria* and *P. Hookeri* are almost identical; the specific difference lies in the characters of the flower and of the capsule.

Phyllanthus parvifolius BUCH.-HAM. in DON Prodr. Flor. Nepal. 63 (1825).

Phyllanthus Roeperianus MUELL. ARG. in Linnaea 32: 28 (1863) and DC. Prodr. 15 (2): 385 (1866), *incl. vars.*

Phyllanthus Roeperianus var. *parvifolius* HAND.-MAZZ. Symb. Sin. 7: 223 (1931).

Phyllanthus praetervisus MUELL. ARG. in Linnaea 34: 73 (1865), and DC. Prodr. 15 (2): 385 (1866).

Phyllanthus juniperinus MUELL. ARG. in Linnaea 32: 28 (1863).

Phyllanthus brevipes HOOK. f. Fl. Brit. Ind. 5: 297 (1887).

Four specimens, recently collected by Kingdon WARD in Northern Burma (no. 44 and 264: Ngawchang Valley, 1938-9) discussed in a separate paper now in the press, show that *P. parvifolius* and *P. Roeperianus* are scarcely better than extreme states of the same polymorphous entity. Such proving to be the case, it is manifest that *P. brevipes* (GRIFFITH 4821), too, is merely an extreme, broadleaved form of the entity which occurs microphylline (*P. juniperinus* p.p.; WALLICH 7901B; WALLACE: Nepal); with elliptic, more or less thin "leaves" (actually: floral bracts) (*P. parvifolius* p.p.; J.D.H. & T.T.: Khasia 4-5000'); with narrowly elliptic, strongly revolute "leaves" (*P. Roeperianus*; WALLICH 7904C: Silhet; J.D.H. & T.T.: Khasia).

The range of this polymorphous entity covers the Himalayas, Assam and Northern Burma and probably extends into S.W. China and French and Siamese Laos.