

Anaphyllopsis: A New Neotropical Genus of Araceae-Lasiaceae

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During the course of revising the species of *Cyrtosperma* in the Far East, it became necessary to review generic limits in the tribe Lasiaceae *sensu* Engler (1911) as amended by Bogner (1973). It has become apparent that the pantropical *Cyrtosperma* circumscribed by Engler (*loc. cit.*) is heterogeneous.

Three species of *Cyrtosperma* have been recognized for the New World. Two of these belong in extant genera—*C. wurdackii* Bunting (*Urospatha*) and *C. spruceanum* (Schott) Engler (*Dracontium*). The necessary new combinations are to be made elsewhere, in a forthcoming revision of *Cyrtosperma*. The third species, *C. americanum* Engler, cannot be fitted into any presently recognised genus.

Subtribal and generic limits in the Lasiaceae are also to be dealt with elsewhere. However, the species in question differs from *Cyrtosperma* s.s. in the presence of both prophylls and cataphylls on the rhizome, and in having fenestrate foliage. The absence of cataphylls may be used as a diagnostic character for the subtribe Lasiinae which includes the Far Eastern species of *Cyrtosperma* and in which fenestrate leaves are unknown. Fenestrate leaves are present however, in *Dracontioides* and *Dracontium*. *Cyrtosperma americanum* appears to be more closely related to *Dracontioides* and *Dracontium*, but differs from both in the form of the spathe which is spirally twisted rather like that of the Indian *Anaphyllum wightii* Schott in *C. americanum*, and hood-forming to erect in the other genera. Of the vegetative characteristics, the stem is rhizomatous and the sympodium mono-

phyllous (under normal conditions of growth) in *C. americanum*, whereas in *Dracontioides* it is rhizomatous and polphyllous, and in *Dracontium* it is cormous and monophyllous.

It is proposed here that a new genus, *Anaphyllopsis*, be erected as an alternative to "lumping" *Dracontium*, *Dracontioides* and *C. americanum*. Were the latter course to be adopted, the resulting broad generic concept of *Dracontium* would be inconsistent with the existing rather narrow limits between other genera of the Lasiaceae such as *Podolasia*, *Urospatha*, *Lasia* and *Cyrtosperma* s.s.

Two new species of *Anaphyllopsis* are described, both, sadly, from single fragmentary collections. Their leaf blades however, are so distinctive as to justify drawing attention to these plants as representatives of new and apparently rare species.

Anaphyllopsis A. Hay, *gen. nov.*

Herbae terrestres paludosae; caudex hypogaeus rhizomatosus, prophyllis cataphyllis euphyllisque praeditus, orthotropus; folii lamina fenestrata vel pinnata; spatha spiraliter torta; flores hermaphroditi tepalati; semina campylotropa albuminosa; testa crassa ornata.

Solitary herbs with subterranean orthotropic rhizomes (where known) bearing prophylls, cataphylls and euphylls; leaves generally solitary with unarmed tubercular to smooth often mottled petioles; laminas dissected by fenestration or ternate with fenestrate segments or

simply pinnate; inflorescence terminal, solitary, on long peduncles similar to the petioles; spathe membranaceous, papery when dry, marcescent, convolute towards the base, spirally twisted in the mid and upper part; spadix with a stipe adnate for most of its length to the spathe; flowers hermaphrodite throughout the length of the spadix, tepalate, maturing (like the fruits) in a basipetal sequence; perianth and androecium tetramerous; stamens with short, strap-like filaments and extrorse bilocular anthers opening by apical pore-like slits; pollen ovoid, monosulcate, with more or less smooth exine; ovary superior, unilocular, uni- or biovulate with basal placentation; stigma not nectariferous; fruit ovoid to obpyramidal, indehiscent; seed campylotropous, pachychalazal, albuminous; seed-coat thick, verruculose to deeply channelled. Type species: *A. americana* (Engler) A. Hay: (basionym *Cyrtosperma americanum* Engler). Distribution: Tropical South America - Venezuela, Surinam, French Guiana and Brazil. Widely dispersed, the collecting sites of the three species (Fig. 4.) fall within three of the Pleistocene forest refugia proposed by Prance (1982).

Key to species of *Anaphyllopsis*

1. Lamina pinnate; leaflets ovate, petiolulate *A. pinnata*
1. Anterior lobe pinnatifid, or if interpreted as pinnate then the leaflets sessile with broad insertions 2
2. Lateral segments of anterior lobe with retuse to bifurcate apices
. *A. americana*
2. Lateral segments of anterior lobe with rounded apices *A. cururuana*

Anaphyllopsis pinnata A. Hay, *sp. nov.*

A ceteribus speciebus *Anaphyllopsidis* folio veriter pinnato differt.

Stem unknown; leaf solitary; petiole mottled, warty, ca. 1.5 m long, ca. .1 cm diam. (dry); lamina pinnate; lowermost leaflets (= posterior lobes) stalked for ca. 3 cm, their blades ca. 30 cm long, 11 cm wide, oblong-ovate, more or less symmetrical, with the tips acuminate for ca. 2 cm; primary lateral veins (of leaflets) pinnate, ca. 12 on each side of the midrib, brochidodromous, collected into a more or less undulating sub-marginal vein, not prominent below (in dry state); secondary venation reticulate, faint; anterior rachis ca. 13 cm long, with two pairs of opposite leaflets similar to basal pair but progressively smaller, terminating in an incompletely divided pair of segments; peduncle smooth otherwise similar to, and winding round the petiole; spathe membranous and papery (dry), ca. 16 cm long, ca. 7 cm wide at widest, ovate-lanceolate (flattened), convolute in the lower quarter, spirally twisted in the upper $\frac{2}{3}$ greenish outside, reddish brown within; spadix 2.3 cm long, 8 mm diam., stipitate for ca. 6 mm with the stipe adnate to the spathe; flowers tetramerous; ovary unilocular; ovules two; stigma raised for ca. 1 mm on a conical style; fruit and seed unknown, Fig. 1. Type: Venezuela, Territorio Amazonas, Rio Negro, near the Brazilian border around Piedra de Cucuy (approx. 66 51" W; 1 13" N), 2 Nov. 1968, *J. G. Wessels Boer* 2387 (U! holotype). Distribution: known only from the type collection from tropical rain forest on granitic soil; altitude 100-350 m.

Anaphyllopsis americana (Engler)

A. Hay, *comb. nov.*

Cyrtosperma americanum Engler in Martius, Fl. Bras. 3, 2 (8178) 117, t. 22 & in DC, Monog. Phanerogam. 2 (1879) 272 & in Pflanzenr. 48 (IV. 23C) (1911) 22, fig. 8; Pulte Enum. Vasc. Pl. Suriname (1906) 78; Jonker-Verhoef & Jonker in Acta Bot. Neerl. 15 (1966) 130. Type: French Gui-

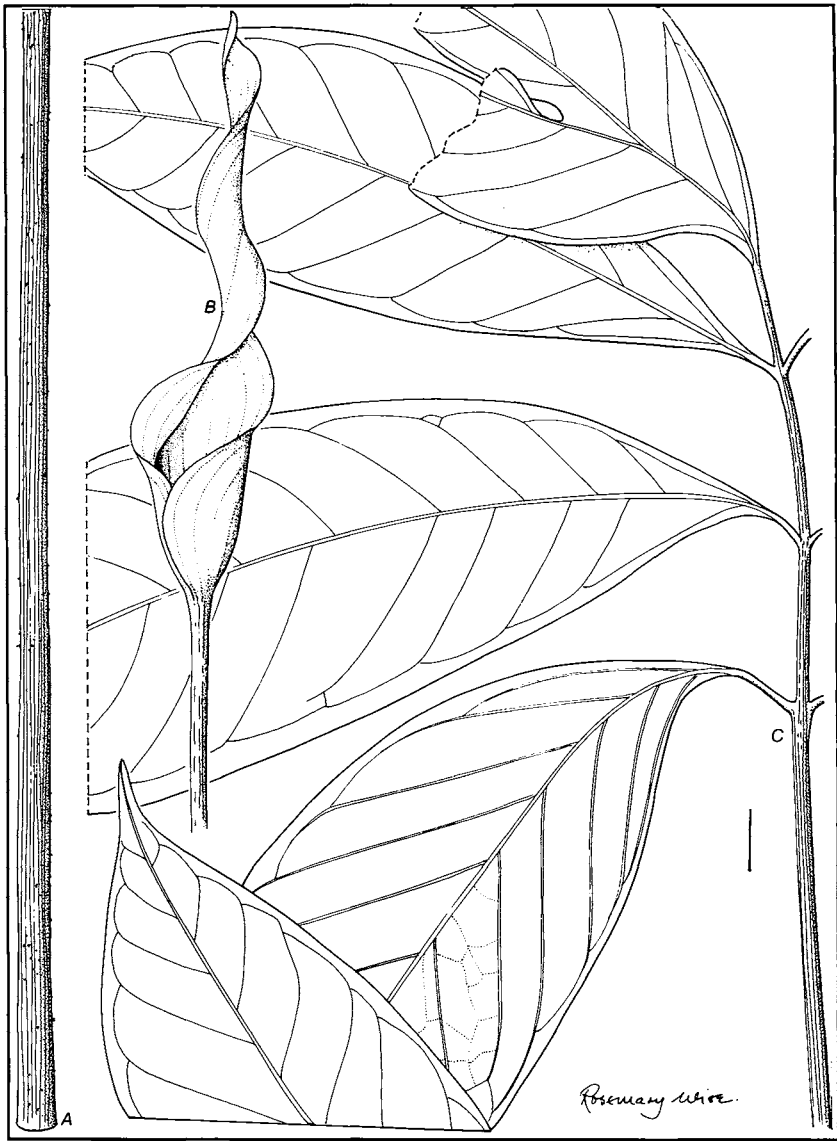


Fig. 1. *A. americana*

ana, Leprieur 152 (P! lectotype, selected here; US!)

Herb to 1.5 m tall; rhizome straight, subterranean, orthotropic, brittle, ca. 2-3 cm diam., to ca. 15 cm long with few scattered roots (in anoxic conditions); or short with copious roots (aerobic conditions); leaf solitary, rarely to three together; petiole to 1.5 m long (usually less),

mottled green, grey and brown, weakly pustular, unarmed, spongy, conspicuously geniculate at apex; sheath very short, rarely to 8 cm, membranous; lamina dark green, glossy above, dull below, sagittate; anterior lobe pinnatisect by fenestration (juvenile expanded leaves sometimes remaining fenestrate), lateral segments opposite, separated to near midrib, *unicostate*, with submarginal veins, *costae* divided

and running to the extremities of the retuse or bifurcate tips; terminal segment rhomboid; posterior lobes naked in the sinus for ca. 5 cm, entire on the *posterior* side, more or less pedately divided by fenestration on the *anterior* side; inflorescence solitary; rarely with an inflorescence and infructescence present together on one plant; peduncle slightly shorter than and similar to the petiole, present with leaf; spathe (and spadix) drying black and turning black in alcohol, to 18 cm long,

ca. 6 cm wide at widest point, lanceolate, convolute below, twisted above, erect, pale greenish-brown to reddish outside, ivory with purple margins below within; spadix on a stipe completely adnate to the spathe and thus displaced at an angle to the peduncle, ca. 2.5 cm long, ca. 7 mm wide; flowers tetramerous, ovary unilocular; stigma dry, button-like, very small; ovule solitary, with basal placentation; fruit obpyramidal, ca. 1 X 1 cm, flat-topped and closely spaced form-

Fig. 2. *A. pinnata*



ing channels in between, Fig. 2. Distribution: Surinam and French Guiana; growing in lowland swamp forest, swamp forest regrowth, swampy woodland and scrub.

I observed this species in August 1984 growing in and near the ORSTROM forest regeneration plots along the Piste Ste. Elie near Sinnamary in French Guiana. Plants were growing in the shade of swamp forest floor, and were rare, in individuals widely scattered. They were found to have the rhizome below the water table, with the apical bud situated at the interface of slate-grey waterlogged (ferrous) and the overlying brown (ferric) aerobic soil. The bases of the rhizomes lay level with the top of an underlying layer of sand. In such conditions the rhizomes bore very few roots, scattered along the length. Some of these were wrinkled, suggesting they are contractile. A few plants were also found growing in an area flooded by a stream blocked off by the road which had been built eleven years previously. A considerable depth of sand had been deposited by the stream over the forest soil, the trees had died and the canopy had opened up. Here *A. americana* was much more vigorous than when growing within the forest, some with three leaves at once and two inflorescences. The water table was more or less level with the sand, and the canopy had opened up. Here *A. americana* was much more vigorous than when growing within the forest, some with three leaves at once and two inflorescences. The water table was more or less level with the sand, and the rhizomes had apparently grown up through it. They had become short, with a great many roots clustered around the crown. Curiously, although several plants were in fruit, no seedlings or juvenile plants were found at this site, whereas they are present in the forest. In areas of free standing water, a few plants were found growing at surface level in the corner of buttresses of dead boles, rooted in moss, bark and mud collected there. Part of the material I collected was lost in transit to the United States, and my collections are represented by some living plants kindly received at Munich by Josef Bogner. I have therefore been unable to examine in detail

the structure of the seed. Engler's illustration (loc. cit.) gives the impression of a thin testa surrounding a thick runinate endosperm enclosing the embryo. This is not so. His "embrog" is endosperm containing the embryo. His "endosperm" is the seed coat, and his "testa" is the seed-coat's outer pigmented layer. The channelled petiole and the inflorescence emerging without a leaf from the mounts of two cataphylls are at best atypical, at worst fictitious.

Specimens seen:

French Guiana, Saut Mais \pm 20km E. of Saul, **Cremers** 6107 (CAY!, K!); Piste Ste elie, nr. Sinnamary, **Hay** 2818 (M!); **Leprieur** 152 (P!, US!), *s.n.* leg. 1838 (P!), leg. 1847 (P!); Marecages de Mt. Sineri, **Mélinon** 52 (P!), 98 (P!), 115 (P!).

Surinam, confluence of the Tapanahoney and Paloemeu rivers, **Wessels Boer** 1223 (K!, NY!, U!, US!).

Anaphyllopsis cururuana A. Hay, *sp. nov.*

Ab alteris speceibus *Anaphyllopsidis* lamina ternato-pinnata, lobis posticis utrinque fenestratis vel sectis, fructo ovoideo, differt.

Stem unknown, ca. 30 cm below soil level; leaf solitary; petiole ca. 1.3 m long., mottled green and white, weakly tubercular, unarmed; blade tripartite; posterior and anterior lobes stalked; anterior lobe pinnatifid by fenestration, divided to or very near to the midrib, with the proximal lateral segments opposite or subopposite, bicostate; costae divided shortly above junction with midrib; apices of the lateral segments narrowing to rounded, slightly asymmetrical and oblique apices; distal segment broad, if divided then more shallowly than the proximal segments; posterior lobes pinnatifid by fenestration or fenestrate on both sides of the posterior midribs; tips of the posterior lobes acuminate for ca. 2 cm; inflorescence solitary on a peduncle

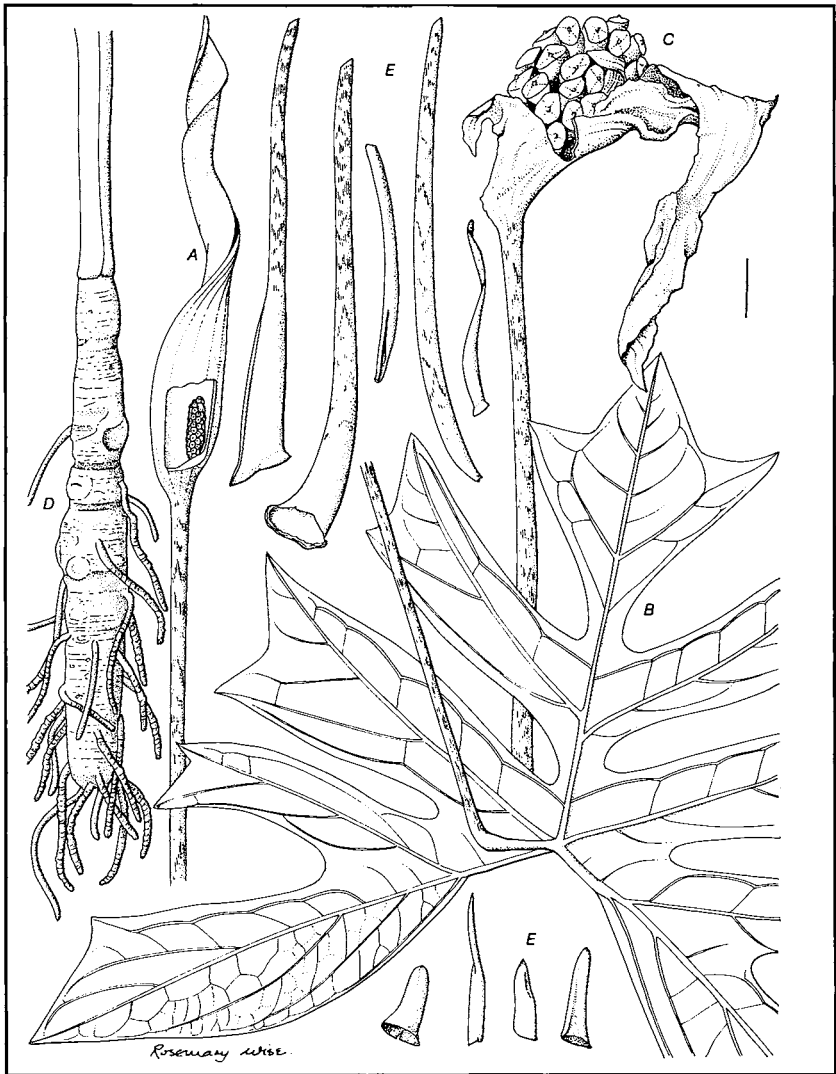


Fig. 3. *A. cururuana*

similar to the petiole; spathe membranous, spirally twisted in upper part, convolute in the lower, to 18 cm long, marcescent; spadix ca. 5 cm. long, 1.2 diam. (infl.), ca. 8.5 cm long, 2.5 cm diam. (infr.), stipitate for ca. 8 mm; stipe completely adnate to the spathe; flowers tetramerous, ovary unilocular, uniovulate with basal placentation; fruit ovoid, smooth; seed orange-brown; testa irregularly crested, brain-like, Fig. 3. Type: Braxil, Estado de Para,

Alto Tapajos, Rio Cururu, 7 Feb. 1974. W. R. Anderson 10627 (US! Holotype; NY!, IAP Isotypes). Distribution: known only from the type collection, in water at the edge of a canal at ca. 140 m alt.

Judging from the herbarium sheets, the leaf of this species is first branched (at the top of the petiole) in the strict sense of branching by outgrowth, and thence further divided by dissection within the margin of the lamina (fenestration). It is thus intermediate in this respect between *A. americana*, in which dissection of the

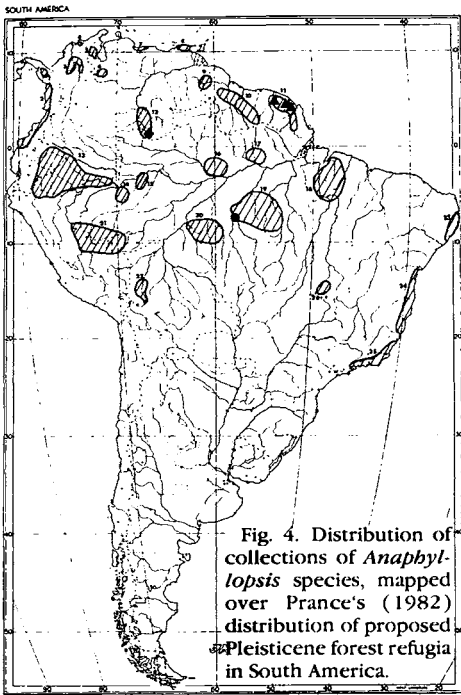


Fig. 4. Distribution of collections of *Anaphyllopsis* species, mapped over Prance's (1982) distribution of proposed Pleistocene forest refugia in South America.

blade occurs within the margin, and *A. pinnata*, in which the leaflets have the appearance of having been formed entirely as outgrowths of the leaf primordium. The leaves of this genus seem very interesting developmentally, and are in need of investigation. The occurrence together of two such seemingly opposed methods of leaf dissection within one genus may be matched by *Amydrium* Schott (Monsteroideae). Juvenile leaves of *Am. medium* are fenestrate, while those of *Am. magnificum*, though dissected, are

never fenestrate, suggesting marginal outgrowth of the lobes of the blade. It would also appear that in some *Dracontium* species there is both marginal and intramarginal dissection in the same leaf.

ACKNOWLEDGMENTS

I am indebted to Marie-Francoise Prevost and Hubert de Foresta for kind hospitality and assistance in the field in French Guiana in 1984, and to Josef Bogner for skillfully growing *Anaphyllopsis americana* at Munich. I would also like to thank the curators and directors of the following herbaria for allowing me to examine material held in their institutions: CAY, K, NY, P, U and US.

This work formed part of a thesis submitted for the degree of Doctor of Philosophy in the University of Oxford. I am grateful to my supervisor Dr. D. J. Mabberley for his guidance and support.

I am grateful to Rosemary Wise for illustrating the species.

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