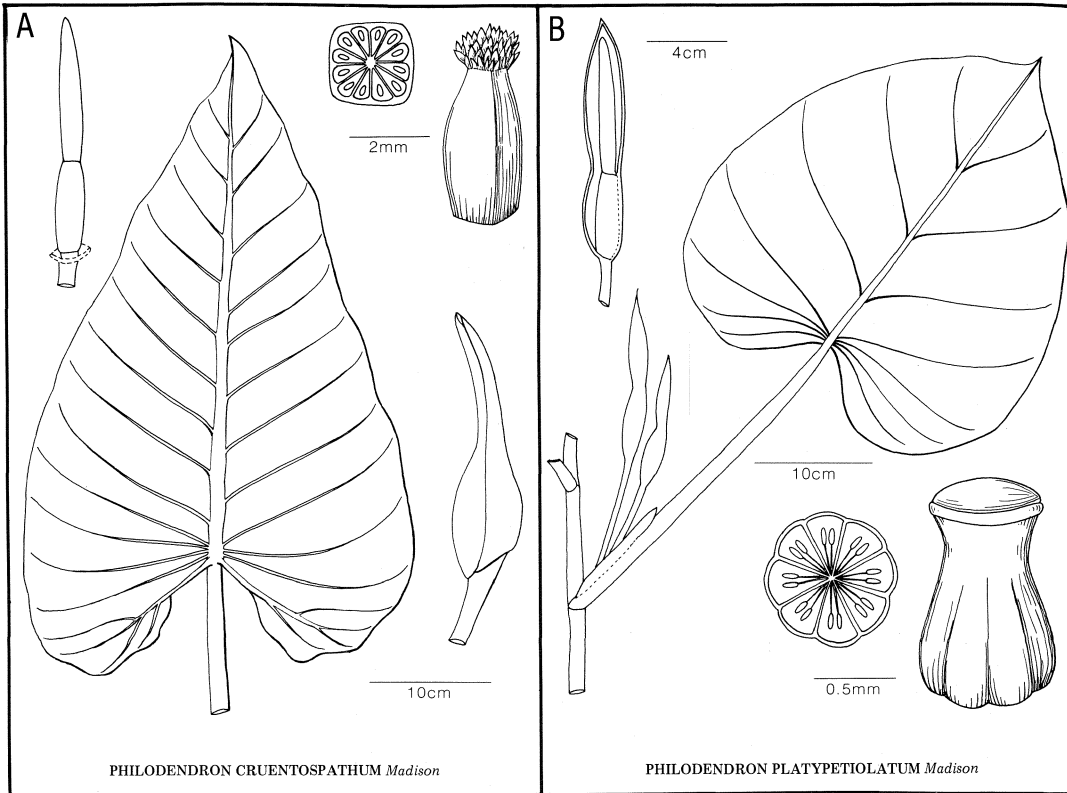


Plate 4. Pollen grains of *Ruellia*, *Justicia* and *Dicliptera*. 1, *Ruellia riopalenquensis*, equatorial view,  $\times 1,400$ ; 2, *Justicia pectoralis* var. *ovata*, equatorial view,  $\times 2,700$ ; 3, *Justicia ianthina*, equatorial view,  $\times 2,550$ ; 4, *Justicia riopalenquensis*, equatorial view,  $\times 3,600$ ; 5, *Dicliptera dodsonii*, equatorial view,  $\times 2,100$ .



PHILODENDRON CRUENTOSPATHUM *Madison*

PHILODENDRON PLATYPETIOLATUM *Madison*

Plate 5

NEW AROIDS FROM WESTERN ECUADOR

Michael Madison\*

Between 1880 and 1910 the anthuriums of the northwestern Andes were thoroughly collected by F. C. Lehmann in Colombia and Ecuador, and A. Sodiro in Ecuador. Curiously, neither of these botanists collected many philodendrons, and thus while names are available for all of the fourteen species of *Anthurium* at the Rio Palenque Science Center, five of the fifteen philodendrons prove to be undescribed.

**Philodendron cruentospathum** Madison, sp. nov. (Plate 5:A).

Planta epiphytica scandens. Caudex teres, laevis, griseo-viridis, 3-4 cm crassus, internodiis 2-5 cm longis. Cataphyllum triangulare, 14-20 cm longum, bicarinatum, mox deciduum. Petiolus teres, valde succosus, 50-80 cm longus, vagina 10-15 cm longa instructus. Lamina sagittata, lobo antico quam lobis posticis 4-6-plo longiore, 50-60 cm longa, 20-30 cm lata, apice acuminata margine leviter undulata. Pedunculus succosus, 8-12 cm longus. Spatha rubra vel saturate griseo-rosea, circa 20 cm longa, medio leviter constricta, apice falcata. Spadicis pars carpellata 4-5 cm longa, 1.2-1.6 cm crassa; pars staminata alba, 7-8 cm longa, 1 cm crassa. Pistilla oblonga, 12-locularia, loculis 1-ovulatis.

ETYMOLOGY: Latin *cruentus*, 'blood-stained,' and *spatha*, 'spathe,' referring to the dirty red color of the spathe.

TYPE: *ECUADOR*: LOS RÍOS: Río Palenque Science Center, km 56 road Quevedo-Sto. Domingo, elev. 150-220 m, collected by C. H. Dodson, flowered in cultivation at SEL May 1977, *Madison 4131* (SEL).

*Philodendron cruentospathum* has ovaries with uniovulate locules, which is the defining character of section *Oligospermium* Engler. It is most closely related to *P. subhastatum* Engler from higher elevations in western Ecuador, from which it differs by its much larger leaves with a narrower and deeper basal sinus, by the spathes twice as long, and by the 12-locular rather than 8-locular ovary.

**Philodendron platypetiolatum** Madison, sp. nov. (Plate 5:B).

Planta epiphytica scandens. Caudex subteres, 10-12 mm crassus, internodiis 6-10 cm longis. Petiolus planus, 10-15 mm latus, circa 25 cm longus, vagina 6-7 cm longa instructus. Lamina tenuiter coriacea, late cordato-ovata, 25-30 cm longa, 22-25 cm lata, apice acuminata vel apiculata, base late cordata; nervis lateralibus utrinque 5-7 arcuatim adscendentibus. Inflorescentia monochasialis spadicibus 2-5 composita. Pedunculus gracilis, 8-11 cm longus; spatha viridis, 10-14 cm longa, anguste cylindrica, vix constricta. Spadicis pars carpellata ad spatham adnata, 20-25 mm longa, circa 1 cm crassa, floribus circa 1 mm longis, 8-locularis, pluriovulatis; pars staminata 5-7 cm longa, 3-10 mm crassa.

ETYMOLOGY: Greek *platy-*, 'flat,' and *petiolatum*, 'petioled,' referring to the strap-shaped petioles of the species.

TYPE: *ECUADOR*: LOS RÍOS: Río Palenque Science Center, km 56 road Quevedo-Sto. Domingo, elev. 150-220 m, March 1977, *Dodson 6638* (HOLOTYPE: SEL, ISOTYPES: MO, US, QCA, Río Palenque Science Center).

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*Philodendron platypetiolum* pertains to section *Polyspermium* Engler, subsection *Platypodium* Schott. It is most closely related to *P. lechleriana* Schott from Peru, which is distinguished by much narrower leaves and by the spadix free from the spathe, rather than adnate in the carpellate portion as in *P. platypetiolum*. The flat, strap-like petioles are the most notable feature of *P. platypetiolum* visible in live material; however on herbarium specimens it is difficult to distinguish this from a pressed and flattened petiole which was terete in the live plant.

***Philodendron pogonocaulis* Madison, sp. nov.** (Plate 5:C).

Planta epiphytica alte scandens. Caudex verrucatus, 1.5-3 cm crassus, internodiis 2-4 cm longis. Cataphylla 12-20 cm longa, in reticulum fibrarum albarum dissolventia. Petiolus laevis, 60-80 cm longus, breviter vaginatus. Lamina tenuiter coriacea, 60-80 cm longa, 35-40 cm lata, oblongo-sagittata, apice acuminata, lobus anticus quam lobis posticis duplo longior; costae lorum posticorum ad basem 5 cm denudatae, crassae; nervi laterales I. utrinque 12-20. Pedunculus teres, erectus, 18-20 cm longus, 5-6 mm crassus. Spatha 12 cm longa, apice abrupte acuminata, infra constrictionem viridis, supra alba. Spadicis pars carpellata circa 2 cm longa, 1 cm crassa, floribus 3 mm longi, 5-locularis, pluriovulatis; pars staminata cylindrica, 7-8 cm longa, circa 1 cm crassa.

ETYMOLOGY: Greek *pogon*, 'beard,' and *caulis*, 'stem,' referring to the envelopment of the stem in the persistent white fibrous remains of the cataphylls.

TYPE: *ECUADOR*: LOS RÍOS: Río Palenque Science Center, km 56 road Quevedo-Sto. Domingo, elev. 150-220 m, March 1977, *Dodson 6669* (HOLOTYPE: SEL, ISOTYPES: MO, Río Palenque Science Center).

*Philodendron pogonocaulis* belongs in section *Polyspermium* Engler. Its diagnostic features include the thick costae of the basal lobes which are denudate for 5 cm, the elongate peduncle, and the envelopment of the stem in a dense mass of white fibers representing the persistent cataphyll remains. A variegated stripe of pale green along the costa is prominent in the juvenile leaves, less so in adult plants.

***Philodendron senatocarpium* Madison, sp. nov.** (Plate 5:D).

Planta epiphytica alte scandens. Caudex nonramosus, viridis, teres, laevis, 1-2.5 cm crassus, internodiis 6-10 cm longis. Petiolus 30-60 cm longus, ad laminam vaginatus. Lamina anguste elliptica vel lanceolata, base acuta, apice acuminata, 50-80 cm longa, 10-20 cm lata. Inflorescentia solitaria; pedunculus 8-15 cm longus. Spatha alba, 12-16 cm longa, medio constricta, pars inferna ventricosa, pars supera cylindrica, ad apicem angustata, falcata. Spadicis pars carpellata 4-5 cm longa, pars staminata 6-8 cm longa. Spatha fructifer persistens, senata vel saturate armeniaca. Semina cochleata.

ETYMOLOGY: Latin *senatus*, 'sienna,' and *-carpium*, 'fruited,' referring to the burnt orange to sienna color of the spathe in fruit.

TYPE: *ECUADOR*: LOS RÍOS: Río Palenque Science Center, km 56 road Quevedo-Sto. Domingo, elev. 150-220 m, April 1977, *Madison 3841* (HOLOTYPE: SEL, ISOTYPE: MO).

This species pertains to section *Pteromischum* Schott. It is readily distinguished by several unique features: the narrowly elliptic leaves 50-80 cm long are much longer than those of other species in the section, the spathe is persistent at maturity and turns a brilliant burnt orange or sienna color, and

the seeds are cochleate in contrast to the cylindrical or fuisform seeds of other species.

Recent specimens of *Philodendron senatocarpium* from Rio Palenque have been identified as *P. silvaticum* Engler. However after studying photos of the type of *P. silvaticum*, I consider that it is a different species, and is in fact synonymous with *P. karstenianum* Schott.

***Philodendron ventricosum* Madison, sp. nov.** (Plate 6:A).

Planta epiphytica scandens. Caudex teres, funicularis, circa 1 cm crassus. Cataphylla 8-12 cm longa in reticulum fibrarum albarum dissolventia. Petiolus laevis, 50-60 cm longus, vagina 2-3 cm longa instructus. Lamina tenuiter subcoriacea, triangulata, apice acuminata, 40-50 cm longa, ad basem 22-28 cm lata; basis sagittata lobis circa 15 cm longis, 10 cm latis, costae haud denudatae. Nervi laterales I. 8-10, quam secundarii paullum validiores. Pedunculus 5-6 cm longus. Spatha albido-virens, 8-11 cm longa, ad medium constricta, in toto persistens. Spadicis pars carpellata alba, ovoidea, 3.5-4 cm longa, ad medium 1.5-2 cm crassa, floribus 5 mm longis, 1 mm crassis, tetralocularis, pluriovulatis; pars staminata claviformis, pallide rosea, 5-6 cm longa, circa 1 cm crassa. Fructificatio spatha persistens, infra ventricosa.

ETYMOLOGY: Latin *ventricosus*, 'pot-bellied,' referring to the swollen lower portion of the spathe in fruit.

TYPE: ECUADOR: LOS RÍOS: Río Palenque Science Center, km 56 road Quevedo-Sto. Domingo, elev. 150-220 m, March 1977, *Dodson 6681* (HOLOTYPE: SEL, ISOTYPES: MO, Río Palenque Science Center).

*Philodendron ventricosum* pertains to section *Polyspermium* Engler. It is apparently most closely related to *P. panamense* Krause, which is distinguished by its much longer peduncles and broader basal sinus of the leaf with the costae denudate for 5-6 cm. In *P. ventricosum* the basal sinus is much narrower and the costae of the lobes not at all denudate.

An additional diagnostic feature of *Philodendron ventricosum* is that the petiole is terete, slender and tough, and held stiffly erect, in contrast to the very fleshy petioles of other Ecuadorian species.

***Caladium riopalenquense* Madison, sp. nov.** (Plate 6:B).

Tuber globosum, profuse bulbiferum. Petiolus folii 30-35 cm longus, vagina 8-10 cm longa instructus. Lamina glabra, membranacea, coradato-ovata, subabrupte acuta, circa 30 cm longa, 21 cm lata, lobis posticis partem tertiam lobi antici subaequantibus; nervis lateralibus utrinque 5 arcuatim adscendentibus. Pendunculus tenuis, viridis, 20-30 cm longus; spatha 10 cm longa, 2.5-3 cm supra basin constricta, pars supera alba, cucullata, pars inferna viridis. Spadix 8 cm longus, pars carpellata 12-14 mm longa, 6-8 mm lata, viridis; pars mascula sterilis circa 2 cm longa, tenuis, fertilis circa 4.5 cm longa, 7-10 mm lata, claviforma, alba, utrinque attenuata.

ETYMOLOGY: For Río Palenque, the type locality.

TYPE: ECUADOR: LOS RÍOS: Río Palenque Science Center, km 56 road Quevedo-Sto. Domingo, elev. 150-220 m, March 1977, *Dodson 6670* (HOLOTYPE: SEL, ISOTYPES: MO, Río Palenque Science Center).

*Caladium riopalenquense* appears to be most closely related to *C. puberulum* Engl., a montane species of northern Colombia which is distinguished by its narrower puberulent leaves. Diagnostic features of *C. riopalenquense* include the non-peltate leaves and the length of the sterile portion of the spadix, which is greater than in other species of *Caladium*.

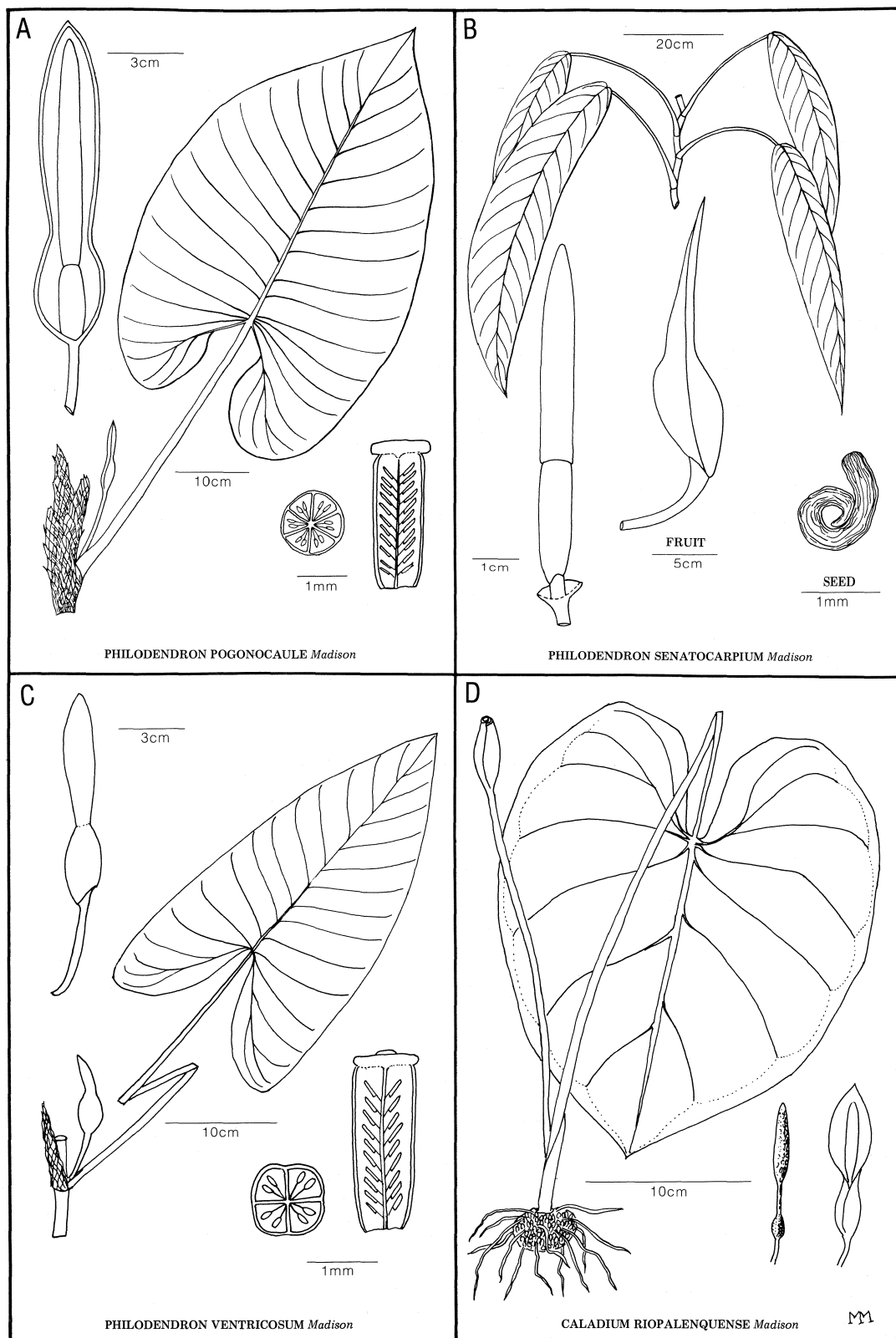


Plate 6