

at alt. 5000 ft. at Galipan, Caracas, Federal District, Venezuela, "1846, fl. en Avril," was seen by Dr. A. S. Hitchcock in the Boissier Herbarium at Geneva. I have studied several fragmentary specimens from the type collection at the U. S. National Herbarium, and the following specimens from Venezuela in the Herbario Nacional de Venezuela and U. S. National Herbarium:

ARAGUA: Rancho Grande (Parque Nacional), Pittier 13983.

WITHOUT PRECISE LOCALITY: Voronoff [Woronow] 454.

### *Elytrostachys*<sup>3</sup> gen. nov.

Genus faciebus aliis *Nasto* Juss. aliis *Perrierbambui* A. Camus arcte affine. Tamen, genus nostrum a *Perrierbambu* (genere in Hannonis<sup>4</sup> Insula indigeno) characteribus saltem sequentibus distinguendum est: planta caespitosa; rhizoma stricte determinatum; rhachin fotentibus bracteis laminiferis setas orales insignes gerentibus; spiculae sesquiflorae; palea dorso invaginata ita intus fistulifera, in fistulam rhachillae segmentum gracillimum cum floscula inchoativa praefixa celans. Genus *Elytrostachys* a *Nasto* (genere in Insula Bourbonia et Hannonis Insula indigeno) characteribus sequentibus abit: inflorescentia brevissima quasi spicata, sine pedunculo distincto, paucispiculata, a latere indeterminata, rhachi principali brevissimi, bracteis amplis plerisque laminiferis gemmiparis, setas orales insignes gerentibus obtecta, rhacheos ramulis unisquibusque prophyllum ima basi gerentibus; spiculae pauciflorae (in speciebus notis sesquifloris); lemmata sterilia nulla; stigmata typice 2. Denique, ut aliquis opinabatur, genus nostrum, saltem inflorescentiarum habitu superficiali (videlicet: inflorescentiae ex apice ramorum egredientes, compressae, quasi spicatae, bracteis laminiferis tectae) remote simile *Phyllostachy* Sieb. & Zucc. videtur. Tamen, rhizomate determinato tantum, culmi internodiis teretibus, ramis plurimis verticillatis, staminibus 6, stigmatibus 2, palea intus fistulosa, etc., quamobrem *Elytrostachys* a *Phyllostachy* remote distat.

<sup>3</sup> ἔλυτρον, covering, alluding to the elytra-like bracts that cover the main rhachis and conceal the real structure of the inflorescence from the casual observer, + σπάχυν, a spike, alluding to the spikelike aspect of the inflorescence.

<sup>4</sup> "Hannibal's Island, i.e. Madagascar.

Characteres generis: *Planta* caespitosa, caespitibus discretis. *Rhizoma* determinatum. *Culmi internodia* fistulosa, inania, teretia, supra sedem ramorum vix vel leviter et breviter tantum sulcata. *Culmi vaginae* (demptis eis plantarum juvenissimarum) desideratae. *Rami* plurimi, vel subverticillati vel verticillati, tenues. *Foliorum laminae* marginibus subtiliter serrato-sabrae, maturitate quidem venulas transversas manifestas carentes. *Inflorescentiae* ex apice ramorum foliiferorum singulatim egredientes, sine pedunculo distincto, breves, compressae, quasi spicatae, vel racemose vel paniculatim ramosae, a latere indeterminatae, axibus subsidiariis brevibus unisquibusque ima basi prophylo fotis, plerisque sursum bracteis gemmiparis tectis itaque *pseudospiculas*<sup>5</sup> componentibus; rhachin principalem foventibus bracteis laminiferis setas orales insignes gerentibus. *Spiculae* pauciflorae (in speciebus notis sesquiflorae), lemmata steriles carentes. *Glumae* typice 2, sibi approximatae. *Rhachillae segmentum* infra tantum lemma fertilem disarticulans claviforme, haud applanatum, vel breve vel plus minusve elongatum. *Palea* dorso invaginata ita intus fistulifera, intra fistulam rhachillae segmentum gracillimum cum floscula inchoativa praefixa celans. *Lodiculae* typice 3. *Stamina* typice 6. *Fructus* ignoratus.

Typus: *Elytrostachys typica*.

The specimens that served as the basis of the description of the type species of the genus *Elytrostachys* had been labeled by someone "*Phyllostachys aurea* Riviere?". This misidentification apparently led to the supposition that both this and the Colombian species were introduced, since no species of *Phyllostachys* has been found to be native in South America. Aside from the rather deceptive appearance of the peculiar, spikelike inflorescences that are borne singly at the tips of leafy branches and are clothed with laminiferous bracts, the plant has nothing in common with *Phyllostachys* except the very general characters that bind all the bamboos together. The most obvious affinities of the genus *Elytrostachys* are with *Nastus* Juss. and *Perrierbambus* A. Camus. With *Nastus*, *Elytrostachys* has in common the verticillate branching habit of the culm, the

<sup>5</sup> For definition and explanation of term pseudospikelet see McClure, this JOURNAL 24: 541-548. 1934.

lack of conspicuous transverse veinlets in the leaf blades, and the general plan of the spikelets, including the terminal, rudimentary floret. The type species of *Nastus*, however, differs from that of *Elytrostachys* in the following fundamental respects: Inflorescences borne on more elongate, specialized, ebracteate peduncles, larger and more effusely branched but laterally determinate (i.e., without tardily developing buds) and lacking throughout prophylls, gemmiparous bracts and undeveloped buds; spikelets very uniform in size, each with several sterile lemmas, the palea shallowly sulcate at the back, not fistulose, and 3 styles. *Elytrostachys* has in common with *Perrierbambus*, so far as their type species are concerned, the following characters: the verticillate branching habit of the culm, the lack of transverse veinlets in the leaf blades, the general orientation and structure of the inflorescence, and the following features of the spikelet: two glumes, one fertile lemma, no sterile lemmas, three lodicules, six stamens with free, filiform filaments. *Perrierbambus*, however, besides having a very different appearance in the fragments seen, differs, as described by Mlle. Camus, in the following respects: rhizomes traccant (indeterminate?), the culms distant from each other, giving the plant a dumetose habit; the spikelets 1-flowered, the palea not keeled nor dorsally invaginate, and without any vestige of a rachilla segment or rudimentary terminal floret at its back. While the two lines are apparently rather closely allied, their fundamental difference in the rhizome habit, on the vegetative side, and in the structure of the spikelet and the palea of the fertile floret, on the reproductive side, have led me, in the light of the significance of these characters in other genera, to expect that other supporting differences will be found when more ample material becomes available.

It is a noteworthy fact, though not one to be given undue weight in deciding their taxonomic disposition, that *Nastus* and *Perrierbambus* are both Old World genera. *Perrierbambus* is known only from Madagascar, and *Nastus* from the Isle of Bourbon and Madagascar. All South American species hitherto attached to *Nastus* have proved, insofar as they have been studied critically, to belong to other New World genera.

### *Elytrostachys typica* sp. nov.

Fig. 4

*Planta conferte caespitosa; rhizoma determinatum (teste Pittier per colloquia). Culmi 6-10 m alti, basi usque ad 4 cm crassi (teste Pittier), internodiis (ramifero sectio mediano tantum culmi adest) teretibus, infra nodos paullo sericeis, alioquin glabris vel glabrescentibus, intus fistulosis, inanibus, nodis vix inflatis. Culmorum vaginae (desideratae). Rami (floriferi tantum adsunt) 5-33 cm longi, tenues, crassitudine subaequales, ima basi tantum divisi, omnino glabri, nodis vix inflatis, eorum mediis haud gemmiferis, vaginas persistentes gerentibus. Foliorum vaginae arctae, cylindratae, glabrae, apice tantum elevato-nervosae alioquin immerse nervosae; auriculae parvae, glabrae, interdum subnullae; setae orales paucae, usque ad 15 mm longae, rigidulae, erectae (haud radiatae), dempta basi bulbosa gracillimae, antrorse scabrae; ligula subnulla; petiolus gracilis, 1.5-2 mm longus, subtus glaber, supra secus medium hispidulus; foliorum laminae usque ad 83 mm longae et usque ad paene 10 mm latae, lanceolatae vel oblongo-lanceolatae, apice attenuate acuminatae basi rotundatae, supra prope margines plus minusve scabrae alioquin utrinsecus glabrae, nervis secundariis utrinque 3-4, e tertiariis sursum aegre distinguendis. Inflorescentia circa 30 cm longa; rachis principalis glabris, internodiis claviformibus, infimo usque ad 8 mm longo superioribus gradatim multo brevioribus; bractae gemmiparae (rhacheos principalis) vulgo 3, rarius 4, subspatuliformes, laxae, usque ad 15 mm longae, subelevate nervosae, glabrae, suprema interdum excepta foliiferae; auriculae minutae, glabrae; setae orales paucae, usque ad 25 mm longae, graciles, pleraeque radiatae, dempta basi bulbosa glabra gracillimae scabrae; ligula subnulla; laminae petiolatae, et alioquin ut in foliorum laminis (vide supra); bractea suprema (rhacheos principalis) interdum a ceteris differens: oblonga, auriculas et setas orales carens, apice integra vel laminellam decoloratam angustissime linearem sessilem persistentem gerens, lamellam tamen interdum funditus carens; pseudospiculae (axes subsidiarii, omnes in typo juveniles) superiores maximae; prophylla carinis late alata, margine alae subtiliter ciliolata alioquin utrinque glabra;*

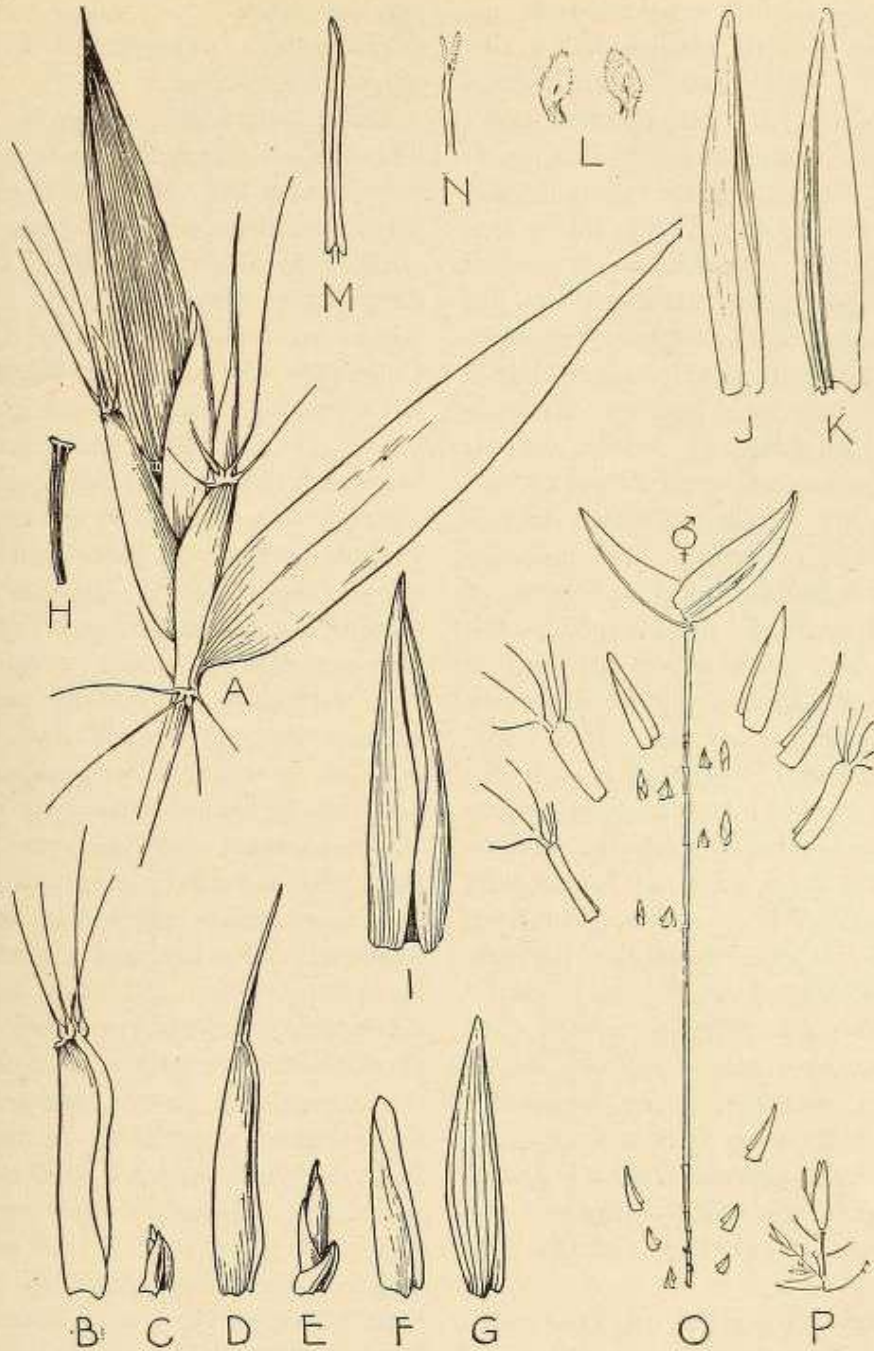


Fig. 4.—*Elytrostachys typica*: A, Inflorescence at tip of leafy branch (note tip of rhachilla segment at base of exerted floret); B, laminiferous bract (or sheath) from the base of the inflorescence (the blade has fallen); C, very young pseudospikelet from the axil of bract at left (note prophyll at its base); D, aphyllous, long-tipped bract, the uppermost on the main rhachis; E, immature pseudospikelet from the axil of bract at left (note prophyll at its base); F, glume I; G, glume II; H, rhachilla segment which terminated the main rhachis and bore a fertile floret; I, lemma; J, palea; K, palea in longitudinal section, showing rudimentary rhachilla segment and floret, which lie in the fistula or dorsal fold; L, a lodicule from the anterior pair: adaxial (left) and abaxial aspects; M, anther; N, pistil; O, diagram showing the parts of a typical inflorescence: Beginning at the base, we find the following appendages at the successive levels: A prophyll, with a vegetative bud in its axil; two bracts, each with a vegetative bud in its axil; three empty bracts; three laminiferous bracts (or sheaths) each with a reproductive bud (young pseudospikelet, its prophyll shown separately) in its axil; aphyllous, long-tipped bract, with a reproductive bud (young pseudospikelet; its prophyll shown separately) in its axil; first glume; second glume; lemma, in longitudinal section; palea, in longitudinal section, showing, within the fistula or dorsal fold, the slender rhachilla segment bearing a rudimentary floret (the reproductive organs of the fertile floret omitted); P, diagram showing the appendages of a typical lateral axis or pseudospikelet, as compared with those of the main axis of the inflorescence. The appendages are (beginning at the base): A prophyll; gemmiparous bract with a pseudospikelet in its axil; first glume; second glume; a perfect floret (the slender rhachilla segment bearing a rudimentary floret shown removed from the dorsal fold of the palea); the reproductive organs of the fertile floret omitted. All, except O and P,  $\times 2$ . (Type.)

*bracteae gemmiparae* (axium subsidiorum) vulgo 1, raro nullae, glumis similes sed multo breviores. *Spiculae* sesquiflorae subfusiformes vix compressae. *Glumae* 2, laxae, glabrae, papyraceae, nervosae, apice acutae vel obtusae, I: usque ad 11 mm longa, anguste triangula, II: usque ad 15 mm longa, quam I fere duplo ampliore, naviculiforme. *Rhachillae segmentum* flosculam fertilem gerens glabrum, in axi principali plerumque brevissimum, rarissime usque ad 6 mm longum, in axibus subsidiariis vulgo usque ad 6.5 mm longum. *Floscula* fertilis decidua, subfusiformis, modice inflata, vix compressa. *Lemma* usque ad 22 vel 23 mm longum lanceolatum, apice attenuate acuminatum, extus glabrum, nervis plus minusve manifeste nervosissimum, intus et nervis et venulis oblique transversis prominentibus notatum. *Palea* lemma aequans vel brevior vel rarius longior, angustior, ventricosula, apice subobtusa, extus glabra, nervosa, intus venulas transversas carens. *Lodiculae* 3, typice subhyalinae trinervesque, intus glabrae, extus puberulae, margine subtiliter ciliatae, anterioribus 2 maioribus usque ad 4 mm longis, basi angustatis, sursum gibbose ovatis, posteriore lanceolata angustioreque, omnibus pervariabilis, interdum deformibus crassis et opacis, saepe minutis. *Stamina* vulgo 6, raro 5 (1-2 interdum plus minusve tabescentibus), usque ad 15 mm longa, angusta, supra in apicem obtusam paullo attenuata. *Ovarium* glabrum fusiforme, apice attenuatum. *Stigmata* 2, sibi approximata, erecta, rigidula, scabra vel tomentosa (an typice?). *Fructus* non ad huc inventus.

Type in Herbario Nacional de Venezuela, Ministerio de Agricultura y Cría, Pittier no. 9226, collected February 21, 1921, at alt. 600 m, in the edge of a monsoon forest near El Limon, Valle Puerto La Cruz, Federal District, Venezuela. Duplicate in U. S. National Herbarium, no. 1067333.

***Elytrostachys clavigera* sp. nov.**

Figs. 5, 6

Species e generis typo differt praecipue foliorum laminis supra, basin versus, scabris; inflorescentiarum bracteis laminiferis ultra  $\frac{1}{2}$  longioribus latioribusque et pro parte saltem sericeo-pubescentibus; glumis circa  $\frac{1}{4}$  longioribus; rhachillae segmenta flosculam fertilem

gerente vulgo circa duplo longiore et per medium saltem pubescente; flosculis perfectis vulgo  $\frac{1}{3}$  brevioribus.

*Culmi* altitudinis ignoratae usque ad vel ultra 4 cm diametro, *internodiis* in medio culmi usque ad vel ultra 37 cm longis, setis aciculiformibus adpressis plus minusve dense obsitis, fistulosis, inanibus, teretibus, ligno circa 2 mm crasso, *nodis* vix inflatis, ad cicatricem prominulam collaris angusto cinctis. *Culmorum vaginae* (desideratae). *Rami* (floriferi tantum adsunt) usque ad 20 cm longi, tenues, crassitudine subaequales, ima basi tantum divisi, omnino glabri, nodis vix inflatis, eorundem mediis haud gemmiferis, omnibus vaginas persistentes gerentibus. *Foliorum vaginae* arctae, cylindratae, glabrae vel fere glabrae, omnino immerse nervosae vel apice tantum elevato-nervosae; *auriculae* parvae, glabrae, interdum subnullae; *setae orales* paucae, usque ad 12 mm longae, dempta basi bulbosa glabra graciles scabraeque, rigidulae, erectae vel patentes; *ligula* subnulla; *petiolus* gracilis, circa 1 mm longus, aut utrinque vel glaber vel hispidulus aut superficiei altera utra hispidulus; *foliorum laminae* pleraeque descitae, reliquis usque ad 75 mm longis et usque ad 11 mm latis, lanceolatis, apice attenuate acuminatis, basi rotundatis, infra glabris, supra praecipue basin versus antrorse scabris, marginibus subtiliter serrato-scabrae, nervis secundariis utrinque 3-4, sursum a tertiariis aegre distinguendis. *Inflorescentia* usque ad 50 mm longa; *rhachis* principalis deorsum saltem pubescens, internodiis claviformibus, infimo usque ad 9 mm longo, superioribus gradatim multo brevioribus, supremo vix 1 mm longo; *bracteae gemmiparae* (rhacheos principalis) vulgo 3-4, alveoliformes, laxae, subpapyraceae, fragiles, facile fissiles, usque ad 22 mm longae, pleraeque immerse nervosae, pro parte saltem subsericeo-pubescentes, suprema interdum excepta omnes foliiferae; *auriculae* modice evolutae, angustissimae, glabrae, fragilissimae prius solventes quam eas foliarum vaginarum; *setae orales* plures, usque ad 18 mm longae, pleraeque radiatae, graciles, rigidulae, dempta basi bulbosa scabrae; *ligula* subnulla; *laminae* petiolatae, alioquin ut in foliorum laminis (vide supra); *bractea suprema* (rhacheos principalis) interdum a ceteris differens: oblonga, auriculas et setas orales carens, apice